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V

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Index to Volume LVI



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# VIRGINIA MEDICAL MONTHLY

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## THE RECOGNITION AND PROGNOSIS OF THE VARIOUS TYPES OF HEART BLOCK.\* †

By ROBERT L. KING, M. D.,  
and  
J. EDWIN WOOD, JR., M. D.,  
University, Va.

The investigation of heart block was initiated one hundred and sixty-seven years ago when Morgagni<sup>1</sup> recorded two cases of "epilepsy with slow pulse". The study of this disorder was temporarily suspended for nearly seven decades. Burnet,<sup>1</sup> Adams,<sup>1</sup> Holberton,<sup>1</sup> Stokes<sup>1</sup> and others then devoted a part of their time to the description of certain instances of "apoplectic attacks" with slow pulse. This continued over a period of a half century when Galabin (1875)<sup>2</sup> first described human heart block with tracings. Finally, on the verge of the twentieth century (1899), Wenkebach<sup>2</sup> and His<sup>2</sup> suggested a lesion of the A-V bundle as the cause of heart block in man. During the year 1927 there were fifty-seven contributions to various aspects of this subject.

We have seen during the past five years, seventeen instances of partial heart block, two of complete heart block, eight of intraventricular block and two of "sino-auricular" block, all having galvanometer curves typical of their respective types. For example, the electrocardiograms of the partial heart block cases showed PR intervals of .22 sec., or more, and in only two instances was digitalis a possible cause of the delayed conduction; the curves from the intraventricular block patients were typical<sup>3, 4</sup> except for two cases which perhaps approached the so-called "arborization" type of block. These had so great a widening of the QRS interval however, that there seemed to be no question of bundle branch block.<sup>3</sup> The two instances of complete heart block showed absolute dissociation of auricular and ventricular contractions. The sino-auricular block patients presented curves with the occasional loss of a single heart beat and the

absence of both auricular and ventricular activity during one cycle.

While an instrument of precision has been used to collect this little group of heart block cases for study, it is not our intention to further dilate upon the electrocardiogram but to employ the clinical data and follow-up records in a discussion of the detection and more particularly the prognosis of heart block.

### I. DETECTION

Partial heart block is not regularly detected by physical signs alone. Three of the seventeen cases were thus discovered and fourteen were found by the galvanometer. The ventricular rate usually ranges between 40 and 60 per minute. In our series it was repeatedly found to be between 40 and 100 per minute. Bradycardia, sometimes a helpful indicator, does not necessarily occur except where there are dropped beats either of a single nature or giving the 2:1 and 3:1 type of A-V block. A simple prolongation of the A-V interval is not generally perceived clinically. Reduplication of the first sound, apparently due to an audible auricular contraction, came to our attention in only one case. As a result of the more frequent contractions of the auricle in certain cases of partial heart block, the presystolic thrill and murmur of mitral stenosis may be changed to an earlier position in diastole. This was noted twice by us. The symptoms and other physical signs may be those of early or late cardiac defeat, while frequently neither signs nor symptoms exist and the discovery of the partial heart block is accidental following routine electrocardiogram. The occasional complete absence of a single ventricular beat or the so-called "dropped beat" is the best clinical evidence of partial heart block (see Fig. 1). This phenomenon generally disappears with an increased heart rate following exercise and in this respect may be confused with the irregularity occasioned by ectopic beats which also disappear with tachycardia following exercise. The inaudible or faintly audible premature beat is perhaps the most

\*From the Department of Internal Medicine, School of Medicine, University of Virginia.

†Read before the fifty-ninth annual session of the Medical Society of Virginia, in Danville, October 16-18, 1928.

frequent masquerader leading to a false diagnosis of partial heart block.

Complete heart block has as its most common and important sign a very slow pulse rate; the ventricle generally beating in the region of 35 per minute. The importance of

prominent venous pulsation in the neck. It has been said that the contraction of the auricle may be heard in the long diastolic pauses occurring in complete block. Contraction of the auricle sometimes causes a visible pulsation in the veins of the neck, constituting

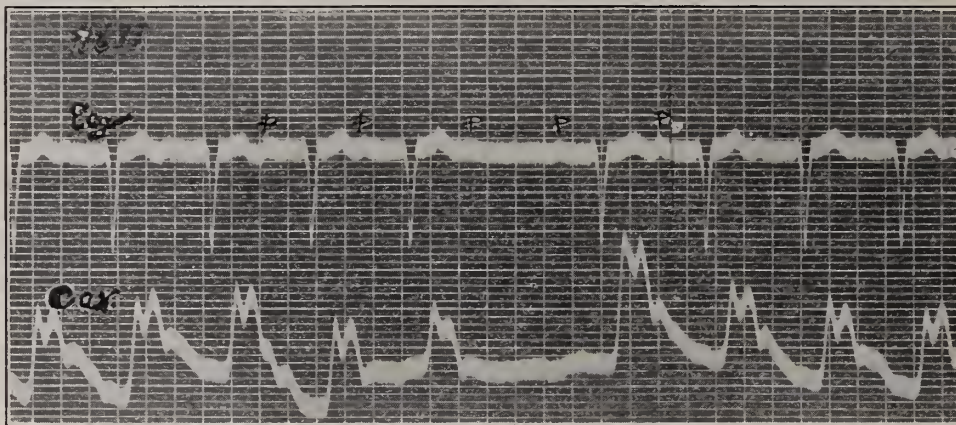


Fig. 1.—Simultaneous electrocardiographic and arterial (carotid) tracing, showing "dropped" beat of partial A-V block.

accurately ascertaining the ventricular rate by listening carefully with a stethoscope at the apex of the heart is well illustrated by the double tracing of Fig. 2. Here it can be seen that the pulse is quite slow due to failure of the premature beats to propagate a perceptible arterial wave. This gives a slow regular pulse

a valuable but too infrequently employed sign in ascertaining the relation of the auricular to the ventricular rate of contraction. All of these more particular physical signs of partial and complete heart block require accurate observation combined with a persistently careful examination. Our own tendency has been

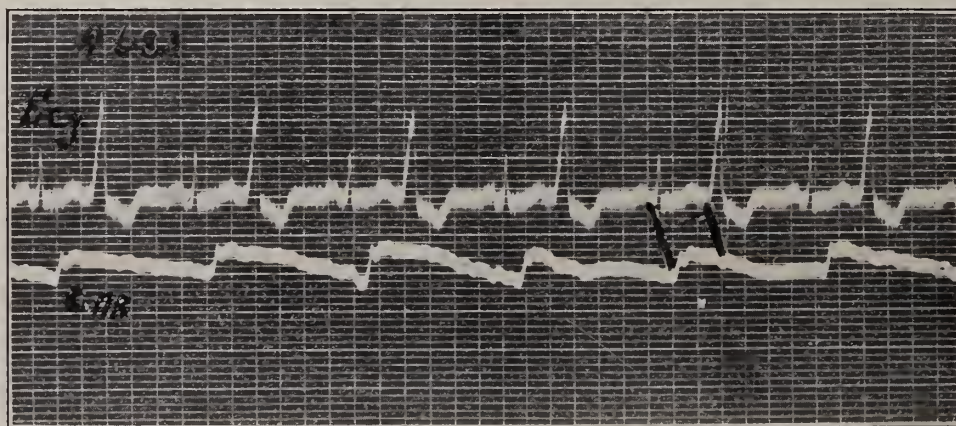


Fig. 2.—Simultaneous electrocardiographic and arterial (carotid) tracing. The alternate ventricular premature beats fail to propagate a palpable arterial wave, the pulse rate being one-half the ventricular rate.

when auscultation at the apex reveals the true nature of the disturbance. In complete heart block, according to Lewis,<sup>6</sup> the first heart sound becomes intensified at intervals when the auricular and ventricular contractions begin together. At such a time there is also a

to depend too much upon the galvanometer and we believe this attitude is unfortunately becoming more widespread.

A history of the time-honored Stokes-Adams syndrome may be elicited in about 25 per cent<sup>11</sup> of complete heart block cases. Frequently ac-



counts of unusual "fainting spells" during the fourth, fifth and sixth decades may lead to a fruitful investigation of the conduction system. If the ventricular rate falls as low as 8 to 20 beats per minute,<sup>6</sup> the features of cerebral anemia result. There is pallor, cyanosis, dizziness, mental confusion, stertorous breathing, twitching of the muscles of the face or limbs and in some instances actual convulsions. In individual cases these vary in number, intensity and frequency and may or may not be related to exercise. The patient seldom bites the tongue nor does he void involuntarily during the attack.

Further aids in the diagnosis of complete block are: the comparison of the venous with the arterial pulsations in the neck most illustratively shown by polygraphic tracings. The electrocardiogram and polygram, though not absolutely necessary for the recognition of this condition, offer infallible means of clinching the diagnosis, the former being much the easier to interpret. Atropine, nitrites, and exercise seldom cause an alteration of the ventricular rate. The systolic blood pressure is usually high and the diastolic low. Other general symptoms may arise from the inefficiency of the heart musculature.

In the past fifteen years much interest has been manifested in the study of intraventricular heart block as to etiology, clinical recognition and prognosis. The delayed contraction of one of the ventricles, causing asynchronism of action, may give rise to interesting clinical signs. J. D. King<sup>5</sup> of Baltimore recently studied the physical signs in this type of block. He groups (1) a visible bifid cardiac apex thrust, (2) a palpable bifid apex thrust and (3) feeble heart sounds with a sound and murmur accompanying the two elements of the thrust, as a triad of signs some 70 per cent valuable in the diagnosis of bundle-branch block. Only in four of the one hundred cases under study were these signs present with the absence of bundle-branch block. He found the diagnosis difficult in the presence of gallop rhythm. A cloth thrown over the chest and a combination of palpation and percussion have been recommended to bring out the double apex thrust.

No cases of this type have come under our observation since the publication of King's article. Although no specific description of the apex thrust appears in our records it may

be of interest to note reduplicated first and second sounds in four of our eight cases and gallop rhythm in one. Four of the cases showed auricular fibrillation, six showed apical systolic murmurs of no diagnostic value and seven cardiac hypertrophy; two had anginal and five congestive heart failure. The diagnosis of intraventricular block in our series was made only by electrocardiogram.

"Sino-auricular block" is rare, has very little clinical significance and presents no characteristic signs or symptoms. It occurs in otherwise normal hearts or with heart disease of any grade. There may be slight preparatory quickening of the heart rate, followed by a pause equivalent to approximately two normal cardiac cycles. Graphically, the "P" or "a" wave may be entirely lacking. These "dropped beats" may occur singly or in groups. It may be difficult to distinguish from (1) the long pauses, accompanying inaudible premature beats, (2) blocked premature auricular contractions, (3) occasional "dropped beats" of A-V block, (4) sinus arrhythmia, and (5) sinus bradycardia. S-A block is nearly always diagnosed after electrocardiographic tracings have been made.

## II. PROGNOSIS

A discussion of the prognosis of heart block involves the consideration of many factors, including the age of the patient, the etiology of the heart trouble, the duration of the affection and the functional state of the heart muscle at the time of examination. Naturally we can find no rule to adequately sum up the prognosis in any or all types of heart block nor can we discuss abstractly the interrelation of the factors mentioned as this varies with each case. However, from this rather complicated problem, it seems fairly clear that heart block (with the possible exception of "sino-auricular" block) generally indicates damage to the heart muscle outside of the conduction system as well as somewhere in it. Due account must be taken of the so-called functional disturbances of the conduction system attributable to overactivity of the vagus, certain intoxications and infections. Finally then, it is not the arrhythmia that is responsible for the modified outlook in these cases but the inability of the myocardium to meet the demands of disease.

In an attempt to clarify the prognostic outlook for patients with heart block we have

tabulated a number of records appearing in the literature mainly of the past twelve years. Congenital heart block has been left out of consideration. Table I contains data derived from case histories of heart block having instrumental proof of the mechanism. Numerous difficulties have been encountered and numbers of case reports have been found to be valueless because of the uncertainty often connected with the outcome of the case. However, Table I represents certain tendencies perhaps of value. For example, in seventy cases

heart block at the age of sixty, according to his family, maintained a pulse of 30 to 35 for thirty-five years. Vaquez<sup>8</sup> chronicles a male patient of eighty-eight with a pulse of 24 for fifteen years. Russell-Wells and Wiltshire<sup>9</sup> described in 1922 a history of a man with intermittent complete block and a normal rhythm extending over a period of twelve years. Willius<sup>10</sup> contributes a case with a history of complete block for fifteen years.

There are no striking figures to be obtained from the columns representing the transient

TABLE I.  
Prognosis in 515 Cases of Heart Block—From Literature.

Type	Number Cases	Number Followed	Prognosis in 1 Year Periods											Ages	Cardiac Deaths	Remarks on Others
			½	1	2	3	4	5	6	7	8	Over 8 Years				
Transient.....	19	19	3—	2+							1+		30—75	2	All others (13) recovered or changed to phb. in a few days	
COMPLETE A-V																
Permanent.....	104	70	11— 1+	22— 1+	2— 2+	5— 8+	5+				10—* 1+	1 living at 15 years 1 living at 10 years	6—91	40	9 under 40 years of age	
PARTIAL A-V.....	155	126	2— 19+			2+ 1+					21+* 47—*		12—79	49	34 recovered from 1 day to 4 months after discovery	
INTRA-VENTRICULAR	393	285	60— 12+	116— 46+	35— 2+	3— 4+	2— 2+	1+		1+		1+ (9 years)	15—81	43 146		
SINO-AURICULAR	42	15	1+d	1+c 1+a			1+b						7—79	0	11 cases "transient" without effect on life	

Minus Sign (—) Dead.

Plus Sign (+) Alive when last traced.

(a) Block disappeared in one year.

\*Not clear that heart block had been present 8 years in all of these cases.

(b) Block still present.

(c) Block present at end of fourteen months.

(d) Block disappeared in twenty-eight days.

of proved (electrocardiogram) complete heart block 57 per cent (forty cases) had succumbed within three years. Eighty per cent of all the deaths in this group were of a cardiac type.

It is only fair to note a few rather striking exceptions to the impression just given. Lewis<sup>6</sup> writes of a man of thirty-three with complete heart block and a heart rate of 30 who was very active and athletic for fifteen years. Hirschfelder's<sup>7</sup> patient, showing complete

complete and partial A-V block case histories. No heavy death toll occurs in this group in the first few years following their discovery. Forty-seven patients of one study<sup>11</sup> were found to be dead within the eight year period. However, the data compiled in Table I seems to be sadly lacking in an adequate representation of this group and we are inclined to believe that a larger series would show a higher mortality in the early years following discovery. Partial heart block is so frequently found in



both arteriosclerotic and rheumatic heart disease that we cannot explain the failure of the literature to indicate a more serious outlook. The literature is full of examples of partial heart block but contains relatively little concerning the eventual outcome of the cases described.

The intraventricular or the bundle-branch cases show the most decided tendency to death shortly after discovery. Of the 285 patients having galvanometer curves typical of this condition 61 per cent (176 cases) died within one year and 74 per cent within two years after discovery. Granting that 67 per cent of all deaths in this group (and perhaps

Although the prognosis of a given case must be derived from an individual standpoint, still it seems worth while to record the findings accumulated from the study of our own cases and to collect comparable data in so far as possible of a uniform nature.

The outstanding facts concerning our cases appear in Table II. As already stated questionable instances of partial heart block and the so-called "incomplete" bundle-branch block cases have been left out of consideration. In the preceding and succeeding discussion a separate grouping of patients with more than one type of heart block has been avoided. In Table II, for example, instances of combined

TABLE II.  
Showing Etiology and Prognosis in Twenty-Nine Cases of Heart Block.

TYPE OF BLOCK	Etiology	No. Cases	Male	Female	Age Groups			Heart Failure		Prognosis in ½ Yr. Periods										Cardiac Deaths
					10 to 20	20 to 40	40+	Ang.	Cong.	½	1	1½	2	2½	3	3½	4	4½		
PARTIAL	A	8	6	2			8	1	4	3— 1+	1+	1— 1+						1+	2	
	R	6	3	3	3	1	2		5	1—			2—				2+	1+	3	
	S*	3	3				3	2	1	1—									1	
Total.....		17	12	5	3	1	13	3	10	5— 1+	1+	1— 1+	2—				2+	2+	6	
COMPLETE.....	A	2		2			2		1	1—			1+						1	
INTRA-VENTRICULAR.....	A	8	7	1			8	2	5	2—	1+ 2—	2—	1+						6	
SINO-AURICULAR.....	R	2	1	1	1		1		1								1— 1+		1	

A-Arteriosclerotic.  
Cong.-Congestive.  
\*Two not followed.

R-Rheumatic.  
Minus Sign (-) Dead.

S-Syphilitic.  
Plus Sign (+) Alive when last traced.

Ang.-Anginal.

87 per cent) died a cardiac death, it is very evident that intraventricular block carries with it a decidedly unfavorable outlook.

Little comment need be made upon the tabulations concerning "sino-auricular" block. Certainly, no generalized deduction of value can be drawn from the quoted figures and general opinion indicates that this type of cardiac arrhythmia has no particular prognostic significance.

We have been greatly impressed with the difficulties involved in attempting to derive any very sound rules for prognosis in heart block from the use of the statistical method.

partial A-V and intraventricular block appear under the latter heading, which is assumed to be the more important of the two. No other conflicts occur in our tabulation. The individual types of block are represented by too small a number of cases for separate and convincing comment. Our experience obviously has been largely confined to the instances of heart block already showing evidences of circulatory difficulty. For example, seventeen of the twenty-nine patients had congestive heart failure. Furthermore, fourteen of the total group succumbed with the cardiac type of death. The heaviest death rate occurred in

the intraventricular block group, six out of eight of these having a lethal exodus within one and one-half years after discovery. Finally, it may be seen that males preponderate very definitely in our series and that arteriosclerosis has been the main agent causing the cardiac disability.

### CONCLUSIONS

(1) Heart block is difficult to recognize by physical signs. From a survey of the literature and our own experience, greater effort could profitably be directed toward the clinical recognition of heart block while instruments of precision should be more servile to the development of clinical acumen.

(2) Heart block (with the exception of the "sino-auricular" type) generally indicates serious myocardial damage. The intraventricular (bundle-branch) type of block offers decidedly the poorest outlook.

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\*References preceded by asterisk (\*) have been used in compiling Table I.

### DISCUSSION

DR. WILLIAM B. PORTER, Richmond: I shall not attempt to discuss the paper, on account of the fact that the hour is quite late; but I should like to thank Dr. Wood for his very scholarly presentation of a subject which has been of intense interest to me for many years. The reason I am interested in the subject of heart block and other manifestations of disturbed cardiac function is that these phenomena represent evidences which are cardinal, so that one may say, without a doubt, that if a patient is suffering from heart block he has cardiac disease, provided, of course, that the patient is not affected from an overdose of digitalis.

DR. T. H. DANIEL, Charlottesville: I should just like to add a few lines about one of these cases included in Dr. Wood's report that is of interest. I was called to see this woman (a white woman in the early fifties) about two years ago. I had attended the family for six or eight years and had never been called to see her previously. She was



healthy and robust. She had a fainting spell to which they paid no attention, and had another about a week later, and I was called to see her. She looked well and felt well. I took her pulse and found it 36 and took her pressure and found she had a systolic pressure of over 300. I told that to a friend of mine in Charlottesville, and he said I was lying. I went down and took it again and found it the same; then I took Dr. Flippin down to see her. I call attention to this because, while this woman had a pulse of only 39 (which was the highest I got) and her systolic pressure was over 300, she has kept in health and fairly good comfort, doing her own housework and some sewing. (She is a seamstress.) I have tried to get her to come down for another examination, but without success.

Dr. ———: I do not at all think Dr. Daniel is lying, for I had one case like that myself. My patient was a man of about sixty-five or seventy years of age who lived for four years with a pressure of ———. He was a farmer and kept on with his farming and finally lay down and died suddenly.

Dr. J. EDWIN WOOD, JR., closing discussion: Dr. Daniel has brought out two points of interest. It is always wise to study the cardiac rhythm carefully in middle-aged patients with attacks of syncope. A high systolic blood pressure is not infrequent in complete heart block.

## HEALTH HABITS IN YOUNG CHILDREN.\*

By JAMES B STONE, M. D., Richmond, Va.

It has been truly said that a large part of the medical practice among children deals with patients who merely need regulation of their daily lives. In the past too little emphasis has been placed on the question of the child's mode of living. In the search for organic disease we have been prone to overlook the high percentage of functional disorders resulting from errors of hygiene in the child's daily routine life. Many of the complaints for which children are brought to the physician are directly traceable to faulty health habits.

### SEARCH FOR FUNCTIONAL AS WELL AS ORGANIC DISORDERS

It is most important to look for organic disease in the child that is not thriving, but on the other hand emphasis should be placed on the fact that many children who are not suffering from any specific organic trouble are far from being healthy, and are just as much in need of medical attention as those suffering from gross lesions.

Too often the malnourished child, or the so-called nervous child, the child with a behavior problem, or the child who simply doesn't thrive is said to have "nothing wrong", is given

a "tonic" and dismissed from the doctor's care, whereas further investigation would reveal numerous errors of a hygienic nature that when corrected would relieve the symptoms and bring health to the patient.

### FACTOR OF GROWTH IN CHILDHOOD

With the advance of preventive medicine there is developing an increased appreciation of the importance of child hygiene. Early childhood is a period of rapid development, both physical and mental. It is this developmental phase of the young child that makes so important for him an observance of hygienic rules, or the "laws of health". In addition to the normal physiological processes that go on in the adult, the child must grow and gain. He must build up new structures in addition to replacing those tissues lost in the normal wear and tear of life. To do this and maintain good health a rather strict observance of hygienic laws is essential. Observance of these laws of health should become habits in the child's life. That is what is meant in this paper by the term "health habits".

### TOO LITTLE EMPHASIS BEING PLACED ON SIMPLE HEALTH HABITS

Every medical man presumably knows the importance of these "health habits", but many parents do not. These simple, but fundamental, rules of health are not given the proper emphasis in discussing with parents the general care of their children. Perhaps the doctor assumes that the parents already know the importance and value of such apparently obvious needs for regulating the child's life and cultivating good health habits. Unfortunately, the very simplicity of some of these "health rules" leads to laxity in their observance and failure on the part of the physician to stress them properly in considering and discussing with the parents the child's health problems.

To increase the child's chances of being strong and healthy, too much emphasis cannot be placed on the cultivation of good habits in his daily regimen. It is impossible to take up in this paper in detail all of the questions of child hygiene. However, it is desired to call attention to a few of the factors that experience has shown to have been at fault in the case of a great many children whose symptoms were the source of untold worry to their parents.

\*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

Of utmost importance, and probably of about equal importance in the child's daily regime, are the matters of sleeping, resting and eating.

#### SLEEP AT NIGHT

Every young child needs from ten to twelve hours of sleep at night, and more often the latter figure. This should be in a quiet, dark, cool room. Strenuous play and excitement at bedtime should be avoided. If indulged in at this time, delay in going to sleep and restlessness during sleep are apt to result. Sound and restful sleep is important at any age, and is most essential to the health of the growing child. As previously stated, he not only has to maintain a state of physiological equilibrium, but must build up, in addition, new tissues in order to grow and gain. It is during the hours of restful sleep that recovery is made from the physical and mental fatigue engendered by the day's activities and the young organism is made fit for the new experiences of the next day. Progressive development, both physical and mental, depends much on the receptive condition of the child; and the child's capacity to profit by new experiences, and his spirit for co-operation will be greatly enhanced by the long hours of quiet sleep.

#### MID-DAY REST

Not only this night rest and relaxation, but also a rest period or nap during the day is important for young children. This should be required of every child up to the age of six years, and in some cases, depending on the individual, should be continued to an even later period. Most children from the time they learn to walk until five or six years of age are extremely active, and if left to follow their own inclinations will overdo their strength. Many will go to the point of physical and nervous exhaustion before giving up, or realizing the need for rest. Much of the malnutrition, fretfulness and irritability, and various behavior difficulties seen in children of this age and older, can be traced to over-fatigue. The tired child usually does not realize that he is tired, but the condition manifests itself in his disposition as well as in the effect on his physical health. He is often difficult to manage, resentful toward being corrected, cries on slight provocation, and temper spells are common. A rest period or nap in the middle of the day frequently works wonders

with these children. Needless restriction of play should be avoided, but a corresponding rest is essential to compensate for the output of energy and to avoid exhaustion.

The best time for this rest is immediately after the midday meal. Sleep comes more readily after a full meal, and rest at this time is more conducive to good digestion than is exercise. This rest not only has a good effect on the child during his waking hours, but will lead to more quiet and restful sleep at night. The practice of keeping a child up all day in order to make him tired, in the hope that he will sleep better at night, is very apt to have an effect opposite to what is desired. The average child will sleep much better at night if he has had a rest in the middle of the day.

#### FOOD HABITS

The subject of diet is important and has probably been stressed much more than sleep and rest, because food is a more obvious need. Not only is a properly balanced diet essential if the child is to have the building materials needed to make a strong body, but the food must be properly prepared. The best of foods may be practically ruined from a nutritive standpoint by the manner of preparation. The above points relative to food are self-evident. The details of what constitutes a balanced diet and the manner of preparing the food cannot be taken up here. On the other hand, the importance of good food habits needs to be stressed.

The "child who will not eat" has long been a problem, and in general the higher the social level and the better the condition of the family budget the greater the problem becomes.

The causes of this difficulty are many, and vary in different families. The effect of eating between meals and of too many sweets in the diet is well known. A common cause of trouble is too much solicitude on the part of the parent. This may have had its origin in some illness of the child during which time the anorexia, due in this instance to the illness, was the source of great worry on the part of the mother. The child becomes aware of the extra attention and concern brought about by the failure to eat. After recovery he, perhaps unconsciously, retains this knowledge and, knowing the effect on the mother of his failure to eat, will refuse food in order to attract greater attention to himself. The desire



to be in the limelight is inherent in many children, and, whether this incentive for the refusal of food comes in the manner just mentioned or through some other accidental discovery of the effect on the parent of this refusal, there is no doubt that it is oftentimes the explanation of the child's refusal to eat. In such cases there frequently follows the vicious circle of refusal of food to attract more attention, and the increased solicitude on part of parent, or attendant, leading to more persistent refusal.

A similar result may come about from unwise conversation in the child's presence. Remarks to friends about poor appetite at once gives the child a place of distinction and the reputation of being a poor eater will be zealously maintained.

Another common source of trouble is the attitude toward food of the adults in the child's company. Expressions as to dislikes for certain food, or complaints about the monotony of certain foods being so frequently served, have a most decided effect in determining the child's distaste for those things. Most children are like mirrors and reflect promptly what goes on around them, and so it behooves parents and other adults coming in contact with children to set good examples in matters of eating as well as of morals.

Different problems are presented by different children and no dogmatic rules can be laid down that will apply to all cases. However, urging or coaxing a child to eat will in most cases result in failure. Children should eat because they are hungry, and not simply to please mother. In other words, eating should be a privilege and not a duty. Among the poorer classes where there is a real scarcity of food, so that eating *is* a privilege, the problem of anorexia in the absence of disease is rarely found.

A few of the explanations of refusal to eat have been cited. To prevent this condition, or to correct it, first of all establish regular meal hours, and have prompt attendance at meals. In general, stop all food between regular meals unless appetite is good. If the child eats well at meals and gets hungry between, bread and butter or unsweetened crackers may be given to satisfy the hunger and will not interfere with eating at the next meal, provided it is not given too close to meal time.

Food should be served attractively, but not

in too large quantities. It is better to serve small amounts and repeat the serving if desired, rather than serve large portions. The impression of scarcity, rather than a superfluity of food is quite conducive to hearty eating.

Dawdling at table or playing with food should not be permitted. If food is not eaten within a half hour, which in general is a reasonable length of time to allow, it should be taken away, and nothing further given until the next meal. No desserts should be given unless other food has been voluntarily eaten. Display of concern over the small amount of intake should be avoided. In absence of illness, which would usually be manifested in some other way, persistent refusal to eat will not be apt to continue over any long period, provided no one shows any concern over the situation.

Too hurried eating and insufficient mastication of food are often responsible for vague digestive disturbances, such as indefinite abdominal discomfort or gaseous eructations. The remedy here is obvious.

#### EXERCISE

Exercise is necessary for good health. Properly taken it not only leads to good muscular development, but stimulates the appetite as well. It should be in the open air as much as possible and out of doors when the weather permits. Usually, the natural inclination to play will insure adequate exercise, but some children are inclined to play in the house rather than outside. Such should be made to get out in the fresh air daily. When weather prevents this, play should be in a room with windows wide open in order to provide good ventilation.

In contrast to the child who does not get sufficient exercise, there are others who over-exert themselves to the point of exhaustion. These may need a certain amount of restriction. The excessively active child is frequently too tired to eat when meal time comes, and in such cases a short rest period just before meals will often result in a better appetite. Too much restriction of play is to be avoided, in order to allow development of independence and initiative. Diplomatic guidance of the child's activities, varying with the individual, and conducted along common sense lines should be the rule, rather than over

strict adherence to a too rigid schedule of play.

#### STOOL HABITS

Another point that needs to be stressed in the daily routine is the matter of regular bowel movements. Constipation is a frequent complaint, the source of much worry to the parent, and often an important factor in the child's poor health. To prevent or to correct this the establishment of a regular stool habit is most important. The logical time is immediately after breakfast, as the peristalsis initiated by the intake of food tends to bring about a natural movement at this time. A good elimination in the morning also prevents absorption of water and toxic substances from the lower bowel during the day. This habit should be established in early infancy and adhered to rigidly as one of the important functions of the day. Regularity is essential, and a small enema or suppository may be used advantageously until the habit is established. Inclusion in the diet of various laxative foods, such as fruits, coarse vegetables, whole grain cereals, or bran, and graham bread, is helpful. Where constipation has become established the use of laxatives such as milk of magnesia or one of the mineral oil preparations, with or without agar, in gradually diminishing doses may be necessary until the regular stool habit has been established.

Much more could be said in regard to physical health habits. An endeavor has been made to discuss some of the elementary but fundamental points that seem not to have been sufficiently stressed in actual practice. Many cases of malnutrition, intercurrent infections, and general poor health can be traced to a failure to carry out the simple procedures that should be habits in every child's life. The formation of these habits should begin in early infancy and be cultivated as the child grows older. Once established, they become a regular part of his life and their practice is continued without effort.

#### MENTAL HYGIENE

A discussion of health habits must include some mention of mental hygiene. This in itself is a broad subject and one of tremendous importance in relation to child health. However, only brief reference to it can be made here.

Instincts are inherited but habits are ac-

quired. We can do little to alter inherited instincts, but by proper training much can be done in the way of developing mentality and in molding the child's character and conduct. Habits of self-control really form the background of moral behavior. It is never too early to begin cultivating these good habits, and by so doing prevent the formation of bad ones. "The child must learn that his own will is not the highest law." Just as in adult life individual sacrifices must at times be made for the good of society as a whole, so in the case of the child some things that he desires must be denied for his general good. The satisfaction of the young child's every whim is not only unnecessary, but is an obstacle to the development of that quality of self-control that is so important in the formation of stability and strength of character. Care needs to be exercised to avoid over severity. The child's spirit should not be crushed; initiative and spontaneity of thought and expression are to be encouraged, but at the same time he should learn at an early age that all things desired are not obtainable. Many emotional abnormalities of later years begin in early life, and the establishment of habits of mental control from the beginning will do much to prevent the difficulties that often arise as the child grows older, and has to make various social adjustments in the adult world of reality.

Here, as in most instances, example is better than precept, and the child brought up in a household where there is harmony and happiness, and absence of discord, contention, and emotional outbursts, will have a far better chance for a healthful mental development and growth.

Firmness, but at the same time justice and fairness should be the rule in all dealings with children. They are quick to sense any unfairness or injustice, and nothing will do more to break down their confidence, and their respect for authority than unfulfilled threats and promises. Spoiling and nagging are equally bad, and both are to be scrupulously avoided.

#### RELATION BETWEEN MENTAL AND PHYSICAL CONDITIONS

The relation between mental and physical hygiene is an intimate one. Physical and mental conditions react upon each other. Emotional conflicts often lead to physical ills, and on the other hand there is often a physical



basis for the nervous manifestations and behavior problems seen in children.

#### EFFECT OF EARLY FORMATION OF GOOD HABITS

Good habits, both physical and mental, if established in infancy and continued through the pre-school period, when mental and physical development are going on so rapidly, will do much to reduce the percentage of retarded and physically unfit children now found when school age is reached. Not only this, but the good habits formed early in childhood are apt to be continued, with resulting better health throughout the school age, and later life.

#### DETAILED INQUIRY INTO CHILD'S LIFE IMPORTANT IN ARRIVING AT DIAGNOSIS OF OBSCURE CONDITIONS

Work with children requires time and patience. Often the complaints are indefinite. They may be related to the digestive tract, the nervous system, the urinary tract, the respiratory tract, or perhaps it is said that the child is unruly, or simply does not thrive. Many times the physical examination will be negative as to any specific diseased condition. A thorough and carefully taken history should include in detail the child's daily routine of life through the full twenty-four hour cycle—his food and its preparation, the time it is eaten and the habits of eating; his rest, his exercise and his play. In other words, the physician should learn everything he can about what goes on in the child's daily life, and not only this, but the environmental conditions under which he lives. In most cases, such an investigation will bring to light some very definite faults of a hygienic nature that even, in the absence of organic disease, are producing morbid conditions.

#### PREVENT ABNORMAL CONDITIONS BY TEACHING HEALTH HABITS

The plea of this paper is not only for the correction of these morbid conditions, but primarily for their prevention. The importance of health habits cannot be over emphasized and it is up to the physician to see that parents are properly informed on the subject of physical and mental hygiene to the end that their children may develop normally, and have sound and stable nervous systems in strong and healthy bodies.

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#### DISCUSSION.

DR. CHARLES E. CONRAD, Harrisonburg: In discussing Dr. Stone's paper I simply want to emphasize some of the things he has brought out. In particular, in starting off with these children I feel it is absolutely necessary to get a complete history of the child, so that you know what you are dealing with. Very often little things will come up in the history that will make the difference between success and failure in your handling of the child. Also, after getting that history, I think it is well worth while to explain to the parents why you want certain things done. If you say dogmatically to the parents that you want such and such a thing done, the parents go home with no conception of why you want it, and very often the thing will not be done.

The advantage of midday rest I think cannot be over emphasized. An hour of rest in the middle of the day I think is often worth two or three hours added at night. These children are often worn out in the middle of the day, and an hour's rest then will mean a great difference. I had a little girl under my care and could not get her to gain weight. Finally, in July, the mother consented to give her an hour's rest in the middle of the day, and the first month the child has gained six pounds. It took a year, though, to get her to start the midday rest.

Another thing along that same line is the nervous child who does not realize he is tired. The majority of undernourished children are of that high-strung, nervous type that go past their endurance and get worked up to such a key that they do not realize they are tired at all. It is very essential that they do get rest in the middle of the day.

As to the handling of these children with regard to food, I think very often if these children are not given a taste of the things that they should not have you will have much less trouble. If they are given a taste, very often they will want the food. Also, in giving new foods, start with a small quantity, because you do not know what the child's reaction will be. The mental attitude has a great deal to do with the question, parents' urging the child to take food and also parents' saying that they do not like certain foods. If they say they do not like a food and will not eat it, very often the child will not eat it. Then spending the whole meal hour urging the child to eat and saying he must eat this and that will get the child so wrought up that he can not eat. I think very often these nervous children who will eat only small quantities can be helped by giving small quantities of concentrated food and then letting them eat other things also. I use a combination of Karo corn syrup, oranges and milk. If you give them these concentrated meals three times a day and after that whatever vegetable or cereal you can get in, you have a good caloric basis, well distributed elements, and vitamin content.

As Dr. Stone said, it is very necessary for these children to get out of doors, as many of them want to lie around the house. Another thing to be con-

sidered is that the time between school and supper is taken up by other things, such as music lessons and things of that sort. The child is given only a few hours out of school, and then to take up that time by music lessons, etc., I think is absolutely wrong.

DR. F. D. WILSON, Norfolk: No more important subject has been before this society for discussion and no more important subject will be before this society for discussion than this subject of the health habits of children. When you recall the enormous amount of disability among adults, when you recall the enormous number of children in our public schools (and most of our children are in the public schools) below par mentally and physically, you will begin to understand the need of consideration of the subject. The mental side of the child's life has had almost no consideration in years gone by, and while we have gone a long way in the correction of physical defects and the preventing of, and lessening the effects of, the acute infectious diseases, we have not made much progress in lessening mental disturbances or malnutrition in children. If you will remember that more than twenty-five per cent of the children in the public schools are more than ten per cent below the average weight for their height and age, and remember that approximately fifty per cent of the men drafted for the great war were physically unfit, you will see that this is a subject of tremendous importance. It has been up before nearly every medical society meeting in the past ten years, yet we pass by proper consideration of the child because we think perhaps the mother is going to take care of the matter and the child will perhaps be all right. Students of this question are emphasizing every day proper health habits, proper food habits, as well as correction of physical defects. I want to indorse what Dr. Stone and Dr. Conrad have said about this and make a plea for more careful study of the subject.

DR. BASIL B. JONES, Richmond: I enjoyed Dr. Stone's paper very much and also the discussion of the other gentlemen who have taken up certain aspects of this subject. I want to discuss just briefly poor appetite in children. I think it is very important in a case of this sort to get a careful history. That does not mean to pump the history out; if you will just drop a few questions, such as "Have you any difficulty in getting the child to eat?" and then sit back and let the mother talk, she will tell you a great deal. Not infrequently you will find a story, extending over months, of coaxing, begging, and even fighting to get the child to eat. In the majority of instances you will find that the way to cure that situation is not to treat the children but to explain the situation to the parents. By that I do not mean that the child should not be examined, because every child presenting these symptoms should have a thorough examination. I think it is very important, as a matter of prophylaxis, never to force the child to eat. The child may be getting along fairly well and then have a little cold or some temporary upset and lose its appetite. Then, if the parents force the child to eat, it will probably vomit. All of you know the effects of the sight of food which has recently been vomited.

The mother's worrying very often has much to do with it. The child realizes that he is the center of attention and dawdles over his meals, and the more he dawdles the more the mother worries, and a vicious circle is established. The way to overcome this is to explain things to the mother. The child

may lose a few pounds the first two or three weeks, but if you can convince the mother and get her on your side, ultimately it will work out all right. You not only will have cured the poor appetite, in so far as it was dependent on poor management, but you probably will have improved the whole relationship between parent and child.

DR. WM. B. MCILWAINE, Petersburg: There are three things I should like to bring out. The first is that these children have hypoacidity; that is, the acid in the stomach is not sufficient, and the feeding of acid milk is a great help. Another thing is that these children have lack of vitamin B and vitamin D. Vitamin B seems to be essential for appetite. I have not enough experience with it myself to bring any definite opinion of my own, but all of us here should certainly be familiar with these three things—the hypoacidity and the lack of vitamin B and of vitamin D.

### PRESERVATION OF THE GENERAL PRACTITIONER.\*

By PERCY HARRIS, M. D., Scottsville, Va.

The subject chosen for this paper is one, it seems to me, that should be of considerable interest to many in this audience. It is very probable that most general practitioners wish they were specialists when they think of the men they know practicing specialties who are so successful professionally (and therefore financially) and compare this success with their own oftentimes ignominious treatment and poor remuneration. But, although the thought of taking up a specialty is enticing, it is my honest opinion that what the public really needs is better trained general practitioners, men of higher medical education, well fitted to give sound advice to their patients.

In choosing medicine as a profession, the idealist is actuated by thoughts of relieving the sufferings of humanity, of preventing disease, and of endeavoring to make the race stronger and better. Coupled with this altruistic view of the matter is the very human feeling that "the laborer is worthy of his hire." It has been said by someone that "Everyone has a natural right to choose that vocation in life which is most likely to give him comfortable subsistence," and if the time comes, and it seems to be approaching, when the general practitioner cannot make a comfortable subsistence, who will take his place? The object of this paper is to inquire, in the brief time at my disposal, into the causes of the situation in which the general practitioner finds himself today, and if possible to suggest a few remedies. In medicine, more than any other profession, I believe, there is a lack of cooperation. This

\*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.



is not at all in accord with the high ideals doctors should have, but seems unavoidable. Doctors in small communities especially are hardly ever good friends and seldom act in harmony. For some obscure reason greed seems to rule their relations with each other much more than it does in larger places. This is deplorable but true, and it is bound to be considered by young men seeking a location after graduation. They do not want to settle in a small place and soon be at odds with the one or two other doctors there, so they give up the idea of general practice, specialize and settle in a larger place. The thought of becoming a general practitioner in a city does not seem very alluring either, because it takes so long to become established, and well trained specialists seem to get a start so much more quickly. Then too, in the country or small towns there are other disadvantages that used not to be considered, such as large, sparsely populated country with many miles between patients and bad roads for these long trips. Also, in rural districts in the last few years the farmers have not been prosperous and money was scarce and the doctor's was the last debt paid. In spite of all this, these people outside of cities are entitled to medical attention and must have it, but who is going to give it if all the young men entering the medical profession shun general practice and go to cities where life is easier and much more comfortable? They do not want to settle down and be "just a country doctor" whose opinion outside of his own field of practice is often held very lightly indeed. If he has ambition, and it takes a good deal of it to carry one through a modern medical course, he wishes to make of himself the best doctor possible, and furthermore he wants to be considered professionally good, by his patients and the public at large around him. He just can't afford to be a poor doctor, the competition is too keen. I do not mean to give the impression that more doctors are needed, but that with the better facilities today, such as good roads and automobiles, the general practitioner should attain a higher standard, cover more territory and receive better remuneration.

Of course a good general practitioner must study, know, and practice preventive medicine, and if he does not do this he is unworthy of his title and deserves to have it taken away from him. But to one who appreciates, to the

fullest extent, the benefits of preventive medicine and who wishes to practice it, it is very hard to stand the accusations that some men in the state cannot do this work correctly. For instance, one doctor was accused of sterilizing his needle by wiping it with his fingers; another was said to have given serum by inserting the needle through the patient's coat sleeve, and still another used the same needle, unsterilized, for a room full of children. It does not seem fair when our ability, as a whole, is measured by three such incompetents. Another complaint says that preventive medicine cannot be left to local physicians because this was done in two or three counties and the work was badly neglected. The people in these communities had not been educated in the needs of preventive medicine or it would have been done and done well, right at home by the general practitioner. It seems to me the state would be saved a large sum and the general practitioner would be greatly benefited if the State Board would only cooperate with him, and not send out men to do the work to which the local physicians are entitled. The general practitioner, any way, does not limit his preventive work to the giving of vaccines for typhoid, smallpox, etc. He does all of this and tries to prevent many other diseases, such as cancer, eclampsia, venereal diseases, tuberculosis, heart trouble, etc., besides. Preventive medicine should begin with the child at birth, and all preventive vaccines that are usually given should be given before the child is two years old. It would be well to see that a law is passed requiring the death certificate of all persons dying with preventable disease, to show who was at fault, that is whether the parents had refused preventive treatment, or whether their family physicians had advised it. An investigation should also be made of the midwife situation, particular attention being paid to cases in which physicians are called in after a midwife delivery to help repair the damage due, perhaps, to lack of preventive treatment. In such cases, in the event of death, the doctor signs the death certificate and has it credited to him, thus increasing the mortality rate attributed to physicians, while it does not count at all in the percentage of deaths attributed to midwife practice. I have worked for preventive medicine ever since I left college. I have been before the Board of Supervisors of my county and have made appeals

for this work, thinking it was a splendid thing, but the ones in authority in the health work have forgotten, or do not care, what becomes of the local physician and he is not even allowed to vaccinate a school child or give him toxin-antitoxin. If you suggest this treatment, the parents say "The Health Board will do it free." This is all right in the case of paupers, but why shouldn't those able to pay be made to do so?

Public health agencies are free to use methods to excite the interest of the citizen, which for various reasons cannot be used by practitioners. Sometimes these methods are so out of harmony with the ideals of medical practice that they receive little cooperation or support from physicians in private practice. The idea given to the public is that the medical man will not aid in the work, that he uses unsanitary methods, and that an organized force has to be sent out to do this preventive work. We have cooperated and shall continue to cooperate, but most doctors feel that, if the state furnished the material free and paid the local physician to do the work, the task would be performed more efficiently. My personal feeling is that I should much prefer to do this work in the schools gratis than to have some one sent to do it. This gives the idea to your clientele that you are not capable or will not do the work. With local physicians in charge, every school, no matter how remote—and the remote schools are generally those most in need of preventive medicine—will have service, and this is not the case now. Also, your children will not be made ill by treatments given the second time, when the child itself is ignorant of what he has had in the way of vaccines. It seems to me just as unfair for the state medical forces to take things into their own hands, by setting the time and place for the giving of preventive medicine, as it would be for the state to go to a town already provided with hospitals, and there erect a new one, and say to anyone in the community "Come here and be treated without cost." This will happen sooner or later if conditions similar to the present ones continue, and then you will have *state medicine*. Do you want it? No! These means are unfair to all concerned. A doctor and nurse, employed by the county or the state, cannot drive, say twenty miles, to a school and do the same work that a medical man living in the community can do, neither can those

sent in do it with as little cost. Every physician should be a party to the work of the health boards, and should feel the same interest in preventive medicine. Then a cooperative feeling would exist between the forces instead of the medical man feeling that what he has been educated to do is being taken away from him. Let there be team work of every blooming soul. If this condition continues to exist you might just as well close your medical schools for general practitioners and have nothing but a few for specialists, and the State Board. There are only sixty-nine medical schools now where there used to be 160. It will be a sad day for the laity when the general man is gone. Preserve the general practitioner and you help the laity as well as the specialists. With no general practitioners, I believe the country will be just as full of cults as it is now of bootleggers, and I believe we would come to regret it just as we have the Volstead Act.

There is no profession, and I do not except the ministry even, that has done more for the welfare of the masses without compensation or selfish thought than the medical profession has done. The public should be educated to a more complete appreciation of the profession, and this cannot be done when nearly all treatment can be had free of charge. People *never* appreciate what they get for nothing. I cannot help feeling that the fine work of the health boards, clinics and social service workers, and co-organizations of various kinds, has brought our standing down, not intentionally of course, but only through great enthusiasm on their part to do good to the masses of the people. This energy has been misdirected sometimes, it seems to me, for they are pauperizing the people and are bringing destruction upon the general practitioner. No one wishes to see the doctors' standards lowered. Keep them high and make them higher for it is human life with which we are entrusted and that is the dearest thing in life to each of us after all.

The doctor's location plays a large part in his career. If his home town or county has in it a medical school, clinics of all sorts, a tubercular sanatorium, besides the health board, social service work and other similar organizations, it is a fine place to live in, but a mighty poor place for general practice! Everyone who can get it, wants free treatment, and this is only human nature. I have talked with many



men at the head of these different branches of medicine, specialists most of them, men of the highest type, and most of them are thoroughly disgusted at the situation and know that they are imposed upon daily, but what are they to do? They hate to complain for fear that it will be thought that they lack public spirit or that they are placing their love for gain above their desire to serve humanity. This question now concerns the whole world and the best medical men in this country are continually writing about it and discussing the subject. We should protect these men and they should protect us.

The man who does industrial medicine or contract work is only too glad to have his preventive medicine done for him as this does not affect his income. It has been suggested that contract or list practice might be carried out successfully in general practice in order to combat the vast and seemingly irresistible forces that seem to be sweeping the medical profession into positions quite different from those that are satisfactory to our best traditions. I disapprove of any such procedure. I did some contract practice during my first years out of college, and was at the time almost ashamed to acknowledge it, for I consider such work unethical, and almost degrading to both the doctor and the people on the contract list. Contract practice under some conditions and in some places is, however, almost a necessity, and no plan that works out better has yet been formulated. Very few persons, though, value the services of a contract doctor; they have an unappreciative attitude and seem to feel that they must get their money's worth. The doctor becomes careless and negligent and instead of improving his scientific mind, it goes to waste. So-called "preventive health examinations" would also come under the head of contract work. In these the doctor is supposed to notify a patient to come for an examination. This looks to me too much like "gunning for trade," and does away with our fine traditions of independence and individuality which are parts of our splendid heritage.

A doctor wants to be kept at work, but not by these methods. A busy doctor is a better physician than an idle one, for he sees more cases, is more alert and experienced in making his diagnoses, and in formulating his treatments. For a doctor to win success in the busi-

ness world means that he has devoted his best energies and powers through long years to the achievement of his ends, and it surely hurts, after doing all this, to lose out. Oliver Wendell Holmes says, "I warn you against all ambitious aspirations outside of your profession. Medicine is the most difficult of sciences and the most laborious of arts. It will task all your powers of body and mind if you are faithful to it. Do not dabble in the muddy sewer of politics, nor linger by the enchanted streams of literature, nor dig in far-off fields for the hidden waters of alien sciences. The great practitioners are generally those who concentrate all their powers on their business. If there are here and there brilliant exceptions, it is only in virtue of extraordinary gifts and industry to which few are equal."

The practicing physician is the most essential arm of preventive medicine. There should be a sharp line drawn between preventive medicine and public health work. The present-day health officer should only establish leadership. In numbers of places the general practitioner is doing all the health work and doing it successfully. The general practitioner today has more obstacles in his path than ever before, but many of these obstacles can be removed if we can get the proper cooperation, but we have the forces of the state, politics, finance, religion, and education all working together, and creating a current against us. We find large numbers of our patients receiving free treatments at the hands of public health agencies, or at a cost so low as to kill the competition with the private practitioner. These clinics, though, do not want the people who are able to pay; they want paupers, and patients that attend clinics are generally so considered. A large part of the population is coming to regard all this free treatment as a matter of course, and the doctor who has expensively trained himself is being ruined for he is justly entitled to a large part of the work done by these free agencies. Billings says that a painstaking general practitioner is able in a great majority of cases to make an accurate diagnosis without expensive equipment. I believe that everyone, no matter what station in life, wants a good family physician, and when a patient goes off to neighboring cities without consulting his physician, he has done three wrongs, first to himself, second to his doctor, and third to the specialist that he consults.

Cooperation must be had between several forces before efficiency, peace and harmony will prevail. These forces are first the public, second the health boards and co-organizations of all kinds, third the hospitals (state, city and private) especially the clinics, and last the general practitioners. I should like to see a set of resolutions offered for the benefit of all this disturbance, believing that conditions satisfactory to all concerned can be worked out. I should like to offer the following, subject to suggestions from any member of the Society:

BE IT RESOLVED: That the Medical Society of Virginia request the *State and County Health Boards*, State Institutions and Co-organizations to cooperate with the general practitioner of both the city and rural districts.

That these physicians be given an opportunity to do preventive medicine in the schools as in their regular practice and what other professional work for which they are equipped, and that they cooperate with the Boards and Institutions.

That patients applying to these organizations and institutions must have a certificate from their family physicians saying that they are worthy and financially unable to pay for needed attention, emergencies excepted, and

That the Medical Society of Virginia urge that all State Institutions and co-organizations be provided with competent social service departments.

In sympathy with this cause some of the best men are doing and saying what they can to correct it. Such men as the president and the president-elect of the American Medical Association, Drs. Thayer and Harris. Dr. M. L. Harris, President-elect, in speaking of the "Organization of Medical Practice" says: "We as physicians are now interested in only one phase of this great problem, and that is health. Whatever scheme is advocated for the care of the health of the people, the physician is the one who must do the work, as he is the only one qualified to do it. Since this is an obligation of the profession it is not unreasonable that the profession should assume control of those agencies that contribute materially to a solution of the problem. These include all hospitals, clinics and dispensaries. The profession should own or at least control and manage all of these institutions and thus make it possible for everyone to obtain com-

petent medical service at a cost within his means. Unless the profession makes some provision for caring for the sick all the time, organizations such as have been mentioned will continue to increase in number and influence and the profession and the community will suffer proportionately, for, as has been stated, anything that is detrimental to the welfare of the profession must act detrimentally to the whole community."

#### DISCUSSION.

DR. SOUTHGATE LEIGH, Norfolk: Dr. Harris has brought to our attention an important subject and indeed a very vital one.

State medicine is in the offing and is the one greatest danger that is confronting our profession today. The only way to keep it off is by organizing, strongly, nationally, in each state and in each county. The House of Delegates of the American Medical Association has been fearful of it for years and has used every means in its power to help prevent it.

It is natural for state health officers to want to be thorough and proficient in preventing sickness and death. No one can do otherwise than applaud such a purpose. But this can be done with the cooperation of the profession and without doing it grievous harm.

All general health clinics should be conducted by the local doctors, *with the assistance of the state health men.*

The local medical society in each county should be practically an arm of the state health department. The trouble is that many counties have no such local organization.

I happen to know positively that the present management of the Virginia State Health Department is unwilling to hurt the profession in any way and is anxious to do all of its work in full cooperation with the local doctors. Such local doctors must do their part, however; and they can not do it without organization.

That means, naturally, that each county in the state *must have a local medical society* if only for business purposes. It should also have a woman's auxiliary to strengthen the doctors' hands by educating the women of the county as to the right way to carry on the health work of the county.

Lack of organization is the weak point of the profession of Virginia. There is every reason for a local organization in each county and none against it. Why, then, are so many lacking? It is possible and even probable that precious time is being lost, that further delay may be disastrous!

DR. ROY K. FLANNAGAN, State Department of Health, Richmond: I want to thank Dr. Harris for his paper. He is a personal friend of mine, and Dr. Harris has always been cooperative. I do not want you to get any idea that he has not been working with the State Board of Health. I indorse what he says along that particular line. The State Board of Health, as you know, has been striving very sincerely and for quite a number of years to have the line of demarcation drawn as closely as possible between the general practitioner and its own work—that is, what properly belongs in the domain of general practice and what properly belongs in the domain of public health. Dr. Williams has written several very fine papers on that subject which have been very widely distributed. So far as we have been



able to arrive at a conclusion in the matter, we feel that we are safe in the domain of prevention; that the thing in practice which specifically prevents disease might properly belong to the State Board of Health, and that which represents cure very particularly belongs to the practitioner. Now, we are trying to draw that line. It is not the easiest thing in the world, particularly in tuberculosis. We have had to accept the charge of the State tuberculosis sanatorium, and that is one domain in which there is a certain amount of cure and a great deal of prevention. It has been a great help to the general practitioner, and I do not think there is any disposition to take away the responsibility of the State Board of Health in the matter of education of the people by sanatorium treatment.

As to the matter of clinics, we do no clinic work at all except in prevention. We do a certain amount of vaccination. Is that cure or is that prevention? Is it in the domain of preventive medicine, or is it in the domain of cure? Whether we shall continue to do that rests very largely upon the medical profession. If the doctors will do the vaccination, if we can get the children vaccinated in sufficiently large numbers, we shall be glad to leave it to them. You see we have to do something with the children of the present generation; we can not wait until we get the physicians organized. We want the local health boards working with the local medical societies, to take command of the situation; and their advice will be listened to with the most profound consideration, and there is no doubt but that you will find the State Board of Health working hand in hand with the medical society and with the profession. We want to solve this question in the best way for all. The Lord knows we can not get away from the practitioner; he is the foundation stone of public health, and we have to preserve him.

DR. HARRIS: How is the general practitioner going to compete with the local health department when that service is done free? We can not compete with the board of health and clinics when the medicines and vaccines are furnished at cost and the work is done by them free, and such competition was never intended.

DR. FLANNAGAN: In the County of Albemarle, from which Dr. Harris comes, they have a local county health department with a whole-time health officer and several nurses; and I may add that Dr. Harris is a valued member of the board of health of the county that is responsible for that department.

DR. W. C. HARMAN, Dolphin: Dr. Flannagan says that if the doctors would give these prophylactic treatments the health department would not do it. In my county the health department is giving toxin-antitoxin and scarlet-fever and typhoid vaccines for ten cents a dose and also taking out tonsils at a very low rate. I want to say that I do not think the doctors are going to do it at this price.

DR. PERCY HARRIS, Scottsville, closing the discussion: I just want to thank these men for the discussion of this paper. The solution of the problem, as I said, will take lots of work. I do not know the solution of it, but I am reminded of a joke told on a little freckled-faced, red-haired boy who came to Sunday school and had one penny. The teacher asked him, Johnny, aren't you glad to give this penny to the Lord? "No," said Johnny, "the Lord has ruined me." That is very much the way I feel; the health organizations and clinics have ruined me.

## SOME IMPRESSIONS ON GASTRO-INTESTINAL DISEASES IN INFANTS AND YOUNG CHILDREN.\*

By WILLIAM B. McILWAINE, M. D., Petersburg, Va.

In presenting this paper I would like it to be understood in the beginning just what I mean by "impressions". It is this—I have no series of cases studied scientifically with laboratory data and autopsy reports to back up what I am to say. They are simply some ideas that have been impressed on me by eight years of practice, a fairly large portion of which, as it is with all pediatricists, has been on the gastro-intestinal tract. Were I connected with a medical school or some large hospital center, I would probably not dare to even mention the word "impressions" for there it would be so easy apparently to prove or disprove one's ideas by statistical studies and other scientific laboratory work that mine would probably be knocked into a cocked hat in a very short time. However, with your indulgence I shall bring out some ideas not at all original with me, but which have helped me to classify and treat gastro-intestinal diseases of childhood.

As to the ETIOLOGY, I believe firmly in the theory, old fashioned as it may be, that most disturbances of the digestive apparatus of the infant and young child are due to something that is put into the stomach. While, I admit that there may be some cases of diarrhea caused reflexly from an abscessed ear or concealed mastoid or pyelitis or what not, still it is my definite impression that all they do is to lower the infant's digestive capacity and, had the feeding been handled correctly, while locating the cause, the diarrhea would probably never have occurred. I doubt not that some professors will hold me up to scorn and derision for my disbelief, as in talking to one not so long ago he advanced the theory that all gastro-intestinal conditions started with an infection in the throat and were probably all reflex from that focus. He said that the fact that we found undigested pickle and peanuts, half chewed apples and hunks of soggy biscuit dough in the vomitus and stools of the child sick with gastro-enteritis was not proof they caused the trouble. I admit that I have no proof, but after seeing repeated cases of children perfectly well in the morning and ill with temperature, vomiting and with diarrhea with the stools full of half chewed tomato

\*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

skins or handfuls of whole butter beans, after stuffing these articles for dinner or supper, gives me the impression that they were most probably the cause.

In spite of the fact that some doubt everything, as to the etiology of gastro-enteritis, statistics and impressions are almost unanimous in stating that heat, humidity, bad handling, and poor environment, flies, and filth are important factors in the high incidence of gastro-intestinal disturbances.

Another very definite impression made on my mind by my own cases is that the past dietary history seems to have a great deal to do with digestive upsets in childhood. I believe it could be proved that while breast feeding is ideal up to a certain point, there are many more cases of diarrhea and dysentery in babies raised too long at the breast than in those weaned may be a little too early. So much am I convinced of this that when a mother tells me as they often do, "I am going to nurse my baby through his second summer as then he will be teething and have diarrhea and the breast milk will save him," I reply, "If you attempt to nurse your baby through the second summer he probably will have diarrhea and the breast milk will be the worst thing for him and you will have to wean him when he is sick. Better start in the winter and get him on a proper formula for summer." Now, my three main objections to prolonged breast feeding, which even now some doctors urge on their patients, are:

1st. It lulls the mother into a false security. She thinks as long as the baby is nursing it cannot get sick and allows it to eat a little of this and that from her plate, mostly half cooked biscuits, ice-cream, a little watermelon, pickle, etc., and then wonders why it does get sick.

2nd. A child that nurses the breast too long will not eat correctly, nursing all night and refusing to touch milk in any form and so the intestinal tract as well as the rest of the system does not have the proper nutrition and is a more easy prey for infection.

3rd. So many mothers nurse the baby for eighteen months to two years to prevent another pregnancy that a lot of times they are pregnant several months before they realize their condition and, in spite of the opinion of one of my learned Boston professors as well as others, I still believe that nursing a

pregnant mother is bad for the child during the nursing. Old fashioned perhaps, but nevertheless a definite impression based on my own observation.

In the etiological factors of gastro-enteritis I must not forget to emphasize the absolutely definite impression which might almost be called a fact that some forms of dysentery are extremely infectious. All of us have seen dysentery go through a household, have seen cases grouped together in localities and believe that just like typhoid fever the infection is carried to a perfectly well infant by fingers or flies. These are generally a typical enteric infection due to the Dysentery Bacillus (Flexner Type) which can be proved by examination of the stool and serum agglutination reactions, though in my own practice stool examination has been very unsatisfactory. However, as this impression has the backing of so much statistical data and of so many other men, we should all recognize the fact and utilize it for the institution of preventive measures.

To recapitulate briefly the chief etiological factors in gastro-intestinal diseases are, as I see it:

1. Irritant foods and undigestible articles of diet.
2. Hot summer and poor environment.
3. Past feeding history.
4. Dysentery infection from another case by flies, etc.

In speaking of the SYMPTOMOLOGY of gastro-intestinal diseases, we must realize that the symptoms and signs vary in accordance with the type of disease which may be the mildest of indigestion to the severest form of cholera infantum, or most toxic dysentery.

In the mild form we will only have a slight mild diarrhea of four to six stools not well digested, loss of appetite, and failure of the infant to gain. This type is often seen in intensely hot weather when no evidence of improper feeding is found, but we must remember that even these may quickly become serious, and institute proper proceedings early.

Next in order we see the regular so-called *fermentative diarrheas* with the green, loose, frothy stools which are acid and irritate the buttocks. There is some straining with restlessness before the movement, which is expelled with gas which reminds me of a rather inelegant but expressive exclamation of a



colored mother in my office who remarked as her child had a movement of this character, "Dar, he done bust loose again".

These fermentative cases are the ones seen by all of us so frequently due to a high carbohydrate feeding as condensed milk, Mellin's food, or Malted Milk. They vary in intensity from mild to critical, depending in my opinion largely on the length of illness and the type of treatment.

Next we find what I call acute indigestion, a term frowned down on by most authorities but what shall we call the type of case that is well one hour and after eating a large quantity of improper food is taken very ill with temperature, vomiting, and diarrhea containing undigested particles of food? It is surely indigestion for we have the irritant action of the partly digested food on both stomach and bowels, and it is certainly acute for an illness of several hours is hardly a chronic ailment. So expecting criticism, I shall nevertheless call these acute indigestion spells. The cause is generally improper food. The result, anything from a mild diarrhea to a severe dysentery infection, depending largely on the time before treatment and the institution of the proper therapeutic procedures.

Next we come to the *infectious type of gastro-enteritis* which almost always has as cardinal symptoms, definite pain, straining and bloody mucous stools. Of course these may vary from a very mild easily remedied condition to one so severe that death results in several days in spite of everything we can do, or go into the so-called chronic dysentery, that is, lasting weeks or even months though never severe.

It is my definite impression that most dysentery or infectious diarrheas start with an acute indigestion from improper food. This irritates the intestinal mucosa; there pathologic bacteria find lodgement, giving rise to our toxemias of the dysentery class. While I admit that perfectly normal babies on a perfectly proper formula can and do have infectious diarrhea, still I believe that the ratio between those set up by improper food and those transmitted by carrier, as flies and hands, are about four to one. As a rule two factors are necessary:

1. Injured intestinal mucosa.
2. A dysentery bacillus.

There are as many who have injured intes-

tinal mucosa followed by diarrhea, a few bloody mucous movements and slight straining without the bacillus and so do not develop into a toxic dysentery infection, as there are cases in which we cannot find an irritant to the intestinal wall and yet there is a definite infectious intestinal process in the child.

As to individual symptoms, the following are most important and of serious moment:

1. Vomiting.
2. Toxemia.
3. Fluid loss.

*Vomiting* occurs in the beginning of most all types of gastro-intestinal diseases of children, and can generally be controlled by the proper procedures. If not controllable or if it develops later in the course of the disease, it is a most ominous feature.

*Toxemia*, indicated generally by temperature, pulse, expression, and its effect on the nervous system, is always alarming. At the beginning, it is to be expected it is controllable, but developing later or steadily it is an indication of disaster.

*Fluid loss*, indicated by loss of weight, poor turgor to the skin, etc., is to be expected after several days, but rapid and uncontrollable fluid loss is the beginning of the dreaded acidosis and means but one thing.

To recapitulate briefly, the symptomatology varies from mild to critical, depending largely on the early institution of the proper therapeutic measures. The most feared and ominous symptoms are vomiting, toxemia and fluid loss. Remember even the mildest should not catch us indifferent or uninterested. We are dealing with a deadly foe of childhood. I am always reminded, when called to a case of gastro-intestinal disease, of the thrill we got when in the play, "The Bat", the detective whispered from the darkened stage, "There is a killer in this house." That's the way we must consider these diseases. Their total in the lives of our little ones is stupendous. This killer is still with us and we must give him no headway by indifference nor neglect. The cry must be "No quarters."

When we enter the realm of THERAPEUTICS of gastro-intestinal disease we have a rich field both for self-congratulation and also for self-condemnation. I heard an eminent Virginia pediatricist say only recently that, had he known twenty years ago what he knew today as to the treatment of diarrhea and dysentery,

how many lives he could have saved. We have made progress surely and yet the statistical reports of deaths from gastro-enteritis all over the United States as well as in our own State is still appallingly large.

To enumerate a few of the factors in the prevention of this class of disease:

1. Better milk supply.
2. More rational and better balanced infant dietaries.
3. More interest in the baby, its growth and development, by the parents.
4. More interest in the baby by the general practitioners and those specializing in pediatrics.
5. More interest in the baby by the U. S. Public Health and State Health authorities.

After all most of these above were sadly neglected fifteen to twenty years ago. Preventive pediatrics is becoming more and more popular both with the physician and mother, and that eventually means a lower incidence rate and so a lowering of the general mortality rate.

What does lower our mortality rate is an appreciation of the newer methods of treating these diseases. I shall discuss them briefly under three heads:

1. Dietary.
2. Therapeutic measures other than drugs.
3. Drugs and how I use them.

Under the first it will obviously be impossible to discuss all the ideas of the feeding of these sick babies. The most outstanding are the use of Protein Milk in the fermentative type of diarrhea and blessed realization that starvation is not necessary for other than a short period of time. It has been my definite impression that Protein Milk is a life saver in fermentative diarrhea. It is almost uncanny to see an infant having fifteen to twenty green, acid, fluid stools, improve by the simple therapeutic procedure of feeding that infant a milk with a high percentage of protein. The stools become thicker, the number is reduced, the water loss is stopped, the baby improves; we see it with each visit. I use it constantly, I recommend it absolutely and, for fear that my opinion will have such little weight that some won't use it, I may say that it has the backing and recommendation of most if not all of the leading pediatricists of the country.

The other outstanding dietetic advancement in treating gastro-intestinal diseases is the idea arrived at after much opposition, much criticism, and much scientific and practical experimentation that far too many of our dysentery cases are starved to death each year by the doctor, nurse, or mother, or by the patient himself.

After the first shock of the infection is about over, after the preliminary starvation period which is still recommended but supplanted by fluids such as lemonade, weak tea, orange juice, or some other carbohydrate solution, we must see that the child gets enough nourishment to have some effect on the stools themselves. Many a case still passing blood and mucus, still straining, and having pain before movements should be fed some form of acid milk and, as soon as possible, cereals, jelly, junket, custard, etc. For I believe that if we can get several formed stools in twenty-four to forty-eight hours we shall see a big improvement in the patient.

The newer knowledge of the dietetics of dysentery is hard on the attending physician for any setback will be blamed on him: the diet is hard on the nurse or mother for she has been taught to think that if her child has dysentery it can digest absolutely nothing: and it is hard on the child for often there is an aversion to food, especially to the one ordered. Here is where the previous training of the child may either lose or save its life. A spoiled, self-willed, uncontrolled child has about one-fourth as good chance of recovery as those who are used to eating what is set before them or are willing to co-operate with the attendants and eat what is ordered. All of us can recall children that could be made to take nothing even by force and who became so weak that the toxic heart simply played out before the proper amount of nourishment and fluids could be gotten in.

It is my definite impression that these so-called dysentery or infectious cases are similar to typhoid fever and have to be treated along the same line but much more vigorously, for we know that typhoid is a self-limited disease. Dysentery untreated or incorrectly treated in my opinion has no definite course except a downward one.

In mentioning therapeutic measures used in our cases of gastro-intestinal diseases, I will stress only one but the knowledge of that one



has helped to change the course of many an infant and child ill with diarrhea.

It is a more frequent use of intra-peritoneal hypodermoclysis. We know now that one of the chief dangers of a profuse watery diarrhea accompanied by vomiting is the water loss by these two factors. We have all seen this type of case many, many times. The child with sunken fontanel, eyes as big as saucers, skin flabby with no turgor, abdomen sunken, etc. The whole picture is one of rapid dehydration. In this condition the intra-peritoneal injection of saline simply puts into the system the fluids for which the child's tissues are starving and we generally get excellent results. My impression, however, is that we should order our intra-peritoneal injection on selected cases. In my opinion it is of little use in acute toxic dysentery, with high temperature unless the child is vomiting and I think as a rule the cases of marked abdominal distention generally show more signs of irritation while the injection is being given and respond less readily to its effect. Fluid loss is one of the most important symptoms to be considered, however, and though I prefer by far the stomach route of absorption of water or fluids, if the child is vomiting we must try fluids under the skin and in the peritoneal cavity in any or all cases.

Another therapeutic procedure which is being used more and more is the transfusion of blood. My personal experience with this measure has been so slight that it is of little value. However, it is my impression at this time that unless we have hospitalization of the case and men trained in doing transfusions, the danger of the procedure itself and the shock to already toxic infants may be disastrous. We shall await with interest the future development of transfusion in gastro-intestinal diseases.

I want also to state that nursing care with its colonic flushings, alcohol baths, ice-caps, hot water bottles, and all the little things which a conscientious hard working nurse can do to make the child comfortable is a great aid in handling these cases.

Coming to the drug therapeutics of gastro-intestinal diseases, what shall I say? The controversy has waxed and waned, the pendulum swung backwards and forwards, from the time when the child was drugged profusely to the time when no drugs were used at all. I per-

sonally take as practical a point of view as possible. Drugs in my opinion are the least important part of our treatment and yet, with such a death rate as we have, we must use every element of our armamentarium, even the least important sometimes. The grave danger in the doctor's life is the ease with which we write a prescription and then we can take our hats and go to our next call. It is so much simpler, it takes so much less time, it satisfies the parents so much better to say, "Have this filled and give it every three hours", than to explain just why an ounce of water is to be given every one-half hour or how to give a bowel irrigation, but I am glad to say parents are asking two questions in this modern age which shows their advancement at least; first they want to know, "What is the matter with my baby?" and second, "What shall I give it to eat?" and so again emphasizing the part that the proper diagnosis, its explanation to the mother, and the directing of measures other than drugs are the essential part of the therapeutics of gastro-intestinal diseases. I shall briefly discuss the drugs:

Dr. A is treating a case of dysentery in the adjoining flat to my case, using no purgative; Dr. B. is treating a case next door instructing a mother to give one teaspoonful of castor oil after each movement; I am treating my case as indications arise, which at times calls for a purgative and at times not. All three cases got well, which goes to show that we were all lucky rather than skillful. My impression is, however, that in cases of acute indigestion from overindulgence in indigestible food, a quick cleansing of the stomach and intestines is desirable. Personally, I like castor oil but, if the stomach is irritated and the child is vomiting, I use and have been impressed with the efficacy of small doses of calomel repeated at intervals. With the mention of the word calomel probably one-half of the medical profession will gasp with astonishment or at least elevate their eyebrows, but as a wandering husband said when explaining his absence, "That's my story and I'll stick to it."

In a simple diarrhea, no drugs are used with any effect that the diet alone cannot accomplish. In dysentery, if the onset is very sudden with high fever and vomiting, I use broken doses of calomel early and after that an occasional laxative as magnesia, if the number of stools become too few, for proper elimi-



nation is essential to combat toxemia. Stimulants if necessary are used freely and while I personally prefer brandy in my cases I would not insist if my consultant prefers grape juice. In cases where rest is necessary I do not hesitate to use opium, preferring paregoric or occasionally tincture of opium.

As to serums for the infectious type of diarrhea, while my experience is limited, I have failed to see enough positive proof of the direct results to recommend it, though I feel that if we are ever to conquer this type of disease some one must produce a specific serum; so far no one has, in my opinion. In the chronic type of dysentery if there is a loss of appetite, occasionally I give a tonic and during convalescence I always use iron, both organic and inorganic.

Oh, would that the solution of the case was dependent on a drug, but alas, success in gastro-intestinal disease comes not that way.

In concluding this paper let me say again that no authorities are quoted, no case histories have been given, no data to prove anything I have said. I am presenting some of my reactions to gastro-intestinal diseases of children in a very poor and sketchy way. I admit, but perhaps some one, some where, may derive some benefit. It is my hope that even though my impressions are all wrong, they might stimulate some one to aid us in solving our distressing and alarming gastro-intestinal diseases of infants and young children.

434 West Washington Street.

#### DISCUSSION.

DR. BASIL B. JONES, Richmond: I enjoyed Dr. McIlwaine's paper very much. It so happens that a short time ago I was discussing this same subject before a medical society, and Dr. McIlwaine discussed my paper. He took exceptions to certain theories I had, and we argued about it afterwards. This is just a continuation of a friendly argument. Dr. McIlwaine seems to feel that improper food, such as he mentioned—pickles, lumpy bread, etc.—is responsible for gastric upsets. This is probably true to a limited extent. Most children will eat foods considered improper from time to time and in the great majority of instances will get away with it, as you all know. Where the food is the primary cause of the upset, I believe there will be very little or no rise in temperature. There will be vomiting and some looseness of the stools but very little rise in temperature; that is my experience. Personally, where I have found fever associated with vomiting and diarrhea, there has been some infection associated with it. Where the infection is not of the dysentery type, I believe the majority of these infections are localized around the nasopharynx. Where the characteristic symptoms of disease are vomiting and diarrhea associated with fever, a con-

dition which lasts usually for one or two days or sometimes longer, it has been my experience that pharyngeal infections play a very prominent role. You often find redness of the pharynx and a little swelling of the eardrums, with fever, associated with the gastro-intestinal upset.

How does this upset take place? We see from time to time almost epidemics of vomiting and loose stools; I have seen it in family after family. Sometimes adults have it. In such cases the symptoms are due to the infection and are characteristic. Some children have a digestive apparatus of limited capacity. They get a little infection that might not upset an ordinary child but, because of this limited reserve, the slight infection will cause diarrhea and vomiting. The vomiting may be in part a reflex affair from the throat infection, but probably is chiefly the result of toxemia. The toxins absorbed from the infected focus cut down the secretion of digestive juices and so prevent proper digestion. Further trouble may result from bacterial action on the partly digested food.

There are one or two points about Dr. McIlwaine's treatment of dysentery that I think should be stressed. It is certainly necessary to feed dysentery cases. Some men, particularly the men around Boston, have urged fairly high carbohydrate feeding in these cases, because carbohydrate, as it passes through the intestine, is changed in part to acids by the action of bacteria, and the presence of acids renders the products of the dysentery bacillus less toxic. Another reason carbohydrates are useful is because they furnish easily utilized foods to help the body fight the infection. The protein milks are easily digested and do not irritate the inflamed gut, consequently they are useful in the treatment of dysentery.

DR. WILBURT C. DAVISON, Durham, N. C.: Dr. McIlwaine has emphasized the two most important facts about intestinal disturbances. The first is that there is one definite group of gastro-intestinal disturbances such as bacillary dysentery, etc., and another group which may be due to hot weather, ingested foods, etc.—a heterogeneous group. The second important point is the giving of fluid to these children intraperitoneally, subcutaneously or intravenously. Diet, as he said, is a secondary matter. Transfusion is a very valuable aid, and the mortality would be reduced if blood transfusions were given more generally.

DR. SAM WILSON, Lynchburg: There is one thing Dr. McIlwaine omitted, intentionally or unintentionally, to which I wish briefly to call attention. This was exemplified three or four months ago in a very interesting case of mine. I think in my whole experience it was the most intensely absorbing case I ever saw, particularly when I contemplate the accidental and dramatic cure. This child had every three or four weeks attacks of bloody stools until it was emaciated and wasted away. When I saw the child, it was dehydrated and the cheeks were sunken, like a baby with diarrhea. Everything was negative; the clinical examination of the child, the physical examination; everything was negative. I could not find anything that I could possibly think of that would fit that case. Occasionally, the mother told me, during the three months the child was sick, it would have attacks of obstruction almost simulating paralytic ileus. The nurse called me one night and said the child was suffering intensely. They had not been able to get the bowels to move for two days. I examined the child, and it was

apparently in great distress. I told her to give the child one drop of croton oil and if the child's bowels did not move in a half hour to repeat it. She called me presently and asked me to come over, saying she had something she wanted to show me. When I got there the child was perfectly comfortable. The nurse showed me a mass as big as my two fists. I took it down to the local technician the following morning and asked him to tell me what it was. After he examined it he found it was a wad of cotton about as big as my fist. How in the world that thing could fix itself in that child's intestinal tract for that number of months is incomprehensible to me. Of course, the question was cleared up immediately. I went back to the mother and asked her how the child got all that cotton into its stomach, and she said she had known for months that the child picked cotton off the bed and ate it. So if Dr. McIlwaine has another case of diarrhea with blood and mucus, and it fails to respond to orthodox remedies, then I would suggest giving a dose of croton oil, as possessing tremendous potentialities!

### LIVER EXTRACT IN THE TREATMENT OF SPRUE, WITH REPORT OF CASE.\*

By J. POWELL WILLIAMS, M. D., Richmond, Va.  
McGuire Clinic.

Sprue is of such rare occurrence in Virginia that it seems fitting to give a brief description of the condition before discussing its treatment. Until the pioneer work of E. J. Wood,<sup>1</sup> of North Carolina in 1915, it was thought to occur only in the tropics save where cases were invalided home to northern climates. Since that time there have been many reports of typical cases occurring in patients who have never been outside the United States, though most of these have been in the southern part of the country. It is an afebrile, chronic disease characterized by glossitis, diarrhea, and progressive anemia, weakness and emaciation. The tongue<sup>2</sup> is inflamed and pink with congested papillae eroded patches and superficial cracks on the dorsum. The bowel movements occur for the most part during the night hours with complete cessation or marked diminution during the day. The stools are bulky, soft light yellow or grey in color, acid in reaction, of sour odor, and there is much gas mixed with the feces. They are composed largely of fat and also contain much nitrogenous material suggesting a pancreatic deficiency. The anemia of sprue is usually referred to as secondary, though the blood picture in well advanced cases is more often of the megalocytic<sup>6</sup> or primary type. The disease runs an irregular course, periods of comparative quiescence alternating with acute

exacerbations. The question of etiology is still under discussion and will be avoided in this paper save to state that a pathogenic yeast, *monilia psilosis*, is found in the stools with great regularity.<sup>7</sup>

The many points of similarity between sprue and pernicious anemia have been commented on frequently in the medical literature during the past few years,<sup>2, 3, 4, 5</sup> and the most striking point of similarity is in the blood picture. As before stated, in advanced cases of sprue there is marked anemia of the megalocytic type which cannot be differentiated from that of pernicious anemia.<sup>6</sup> It was to be expected then, after the brilliant work of Minot, Murphy, and Cohn,<sup>8, 9, 10, 11, 12</sup> that liver therapy be given an intensive trial in sprue, especially in those cases showing an anemia of the primary type.

Bloomfield and Wyckoff<sup>14</sup> reported the first case successfully treated by the Minot and Murphy whole liver diet. Minot and Murphy<sup>11</sup> later reported a similar case; Baumgartner<sup>15</sup> comments on its beneficial effect. E. J. Wood reported the successful treatment of two cases with liver extract No. 343 but no details are available.<sup>11</sup> B. K. Ashford,<sup>16</sup> of Porto Rico, reported favorable clinical results using liver extract No. 343 in conjunction with his special sprue diet, but commented only on the effect of the extract on the blood, assuming that his diet alone was responsible for clinical improvement other than in the blood. He noted that in cases showing the blood picture of primary anemia with erythrocyte counts below 2,000,000 per cmm., the bone marrow response was in every way similar to that seen in pernicious anemia cases treated with the extract; while in the cases of primary anemia in which the erythrocyte count was 3,000,000 or higher and in the secondary types of anemia there was no reticulocyte shower. Richardson and Khmmp<sup>17</sup> have reported the first case of sprue in which liver extract No. 343 was used with very little dietary restriction<sup>18</sup> save during the first few days when the patient's condition was critical. Their results were all that could be desired.

#### CASE REPORT

Mr. S. G. W., white, age 69, was admitted to St. Luke's Hospital, May 18, 1928, complaining of shortness of breath, extreme weakness, dropsy, diarrhea, and pallor. His family history was negative save that his progenitors

\*Read at fifty-ninth annual meeting of Medical Society of Virginia, in Danville, Va., October 16-18, 1928.



for the past three generations had all lived to be octogenarians. He had had the usual childhood diseases but no other illnesses of any kind up to the onset of his present trouble. He was of the old aristocracy of Virginia and all his life had eaten largely and well. It had been his custom, up to the prohibition era, to take three or four drinks of whiskey daily and frequently wine with his meals. Since prohibition he had not touched alcoholic liquors. It had been his boast for years that his bowels moved regularly and normally twice each day, once on arising and once after breakfast. To this he attributed his excellent health and digestion.

In 1917 it was necessary for his company to send him to Porto Rico to take charge of its branch there. For three or four months his health was excellent, then he began to notice that it was necessary for him to get up one or more times each night to move his bowels. The stools were loose and watery for the first three months but there was no fever, abdominal pain or tenesmus. He does not recall that his tongue was sore but he had some "fever blisters" in his mouth. He began to lose weight and became weak. During his last month the stools became even more frequent, sometimes seven or eight movements a night, and their character changed. They became light in color, soft and foamy, and of foul sour odor. The patient was astonished at the large bulk of the material passed; as he expressed it, "I passed at least three times as much by bowel as I took in by mouth". He finally went to a doctor who told him he had an incurable disease and ordered him home at once. He was told to eat citrus fruit in abundance, also eggs and toast, and to drink lots of milk. He took the next boat home and finally went back to his old work. During the next ten years he stuck religiously to the diet prescribed for him save that he ate a rare beef steak once a week. His bowels never moved less than twice a night and averaged about four times. There were usually one or two movements during the day. There was much discomfort from gaseous distention and he passed much gas by bowel. There were periods of acute exacerbation during which the stools became thin and watery and his bowels moved almost constantly, but there was never any fever, pain, or tenesmus, and no blood was ever noted.

About a year ago he began to notice an increasing disinclination to exertion, shortness of breath and pallor, but by this time he had retired and managed to get along fairly well. He had gotten so that he could not control his bowels well and frequently soiled himself. Six weeks before admission he took a trip to New Orleans and stayed two weeks. During this time he had an acute exacerbation of his trouble and became so weak that he could not leave the house. He thought that he had contracted influenza but there was no fever or respiratory symptoms. After returning home his course was steadily downward. His diarrhea became watery and kept him up the better part of the night. His shortness of breath and weakness was such that he could not come down stairs; he began to get dropsical and his color was ghastly. For the two weeks before admission he slept practically the whole time save when it was necessary to move his bowels. He thought he had lost about thirty-five pounds in weight during his illness.

On physical examination the following positive findings were noted. The patient was sluggish and drowsy though entirely rational. There was marked dyspnea and orthopnea. The mucous membranes and skin were very pale and cyanotic. The tongue was clean, beefy red in color with prominent fungiform papillae, and approached the cobblestone appearance in contrast to the slick, glassy, tongue of pernicious anemia. The heart was markedly enlarged, the right border being two inches to the right of the mid-sternal line in the third interspace and the apex at the left anterior axillary line in the sixth interspace. There were loud systolic murmurs at the apex, over the xyphoid, and at the base, and there was easily palpable pulsation of the enlarged liver. The pulse rate was 120 with normal rhythm. The blood pressure was 140/100. The lungs showed many moist râles throughout with fluid to the sixth rib on the right. The abdomen was distended, with tympany over the dome and shifting dullness in the flanks; a fluid wave was present. The liver edge was two inches below the costal margin. It was firm, very tender, and pulsated. The genitalia, lower extremities, and dependent portions of the body were markedly edematous. The reflexes were markedly exaggerated, but there was no spasticity nor were any of the pyramidal tract signs present. The sensi-



bility to touch and pain was dulled over the edematous areas but normal elsewhere. Coordination and position sense were normal above and below. Vibratory sense was normal. Station and gait were normal. No astereognosis nor adiadokokinesia. There were no subjective paresthesias.

The laboratory findings were as follows: Hemoglobin 18 per cent, erythrocytes 900,000 per cmm., color index one. Leucocytes 4,500 per cmm., polymorphonuclears 42 per cent, lymphocytes 56 per cent, eosinophils 2 per cent. The smear showed marked anisocytosis with megalocytes predominating. There was also marked poikilocytosis and polychromatophilia. No normoblasts nor megaloblasts were seen. Vital staining showed only an occasional reticulocyte. The mean diameter of the erythrocytes was  $9.97\mu$  and the dispersion was  $6.2\mu$ . The blood platelets were 150,000 per cmm. The bile index was 9 and the direct Van Den Berg was negative.

The urine showed a trace of albumin and a few hyaline and finely granular casts.

Blood chemistry showed 110 mg. of sugar per 100 c.c., 24 mg. of non-protein nitrogen per 100 c.c., and 8.5 mg. of calcium per 100 c.c. The blood Wassermann was negative.

Gastric analysis on May 24th showed free HCl 10, total acidity 42. On June 15th, free HCl 16, total acidity 30. On June 28th, free HCl 23, total acidity 45.

Electrocardiogram showed sinus tachycardia and myocardial degeneration.

Proctoscopic examination with 9-inch instrument showed the mucous membrane normal save for its pallor. There were no ulcers. No amoebae were found in the material removed.

The stools were very light yellow in color, pultaceous, frothy, and of foul acid odor. They were composed largely of fat as shown both by direct examination and after staining with Soudan III. There was a small amount of mucus present but no pus, and the guaiac and benzedine tests were negative. No ova or parasites were found. Monilia enterica was isolated from the stool by Dr. Frederick W. Shaw. This organism is claimed by Castellani to be identical with Ashford's monilia pilosis.

#### TREATMENT AND PROGRESS

For the first twenty-four hours in the hospital the patient was placed on a Karell diet,

large doses of digitalis, and morphia. A transfusion in the face of a failing circulation seemed too dangerous, so it was decided to delay this procedure until the heart had been digitalized and pulmonary congestion had cleared up. In the meantime the patient was given four ounces of liver extract (Valentine) daily, the equivalent of about one kg. of raw liver, and orange juice and strawberries were added to the diet. The third night in the hospital the patient slept without morphia and was aroused only once by his diarrhea. Diureses had been marked, the pulse had slowed to 90 per minute, there was little moisture in the lungs, and the edema was subsiding rapidly, so on the fourth day the patient was put on our anemia diet which is similar to that recommended by Minot and Murphy save that

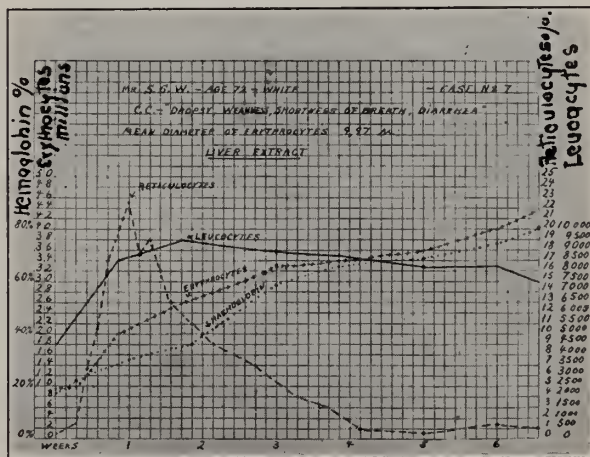


Chart I.—Response of reticulocytes, erythrocytes, hemoglobin and leucocytes to liver extract in sprue.

the fats are not restricted, more red meat is used, and no liver is included, liver extract being used to take its place. The patient took the diet with great hesitancy since it contained many foods which he had foresworn for the past ten years, but his improvement was spectacular. The sixth night in the hospital was the first in ten years during which he had slept the night through without a bowel movement, and since that time there have been no night movements. On the tenth day he passed his first formed stool and since that time they have been normal in appearance. As shown in the accompanying chart there were three days during the first three weeks on which there was no bowel movement.

The response of the blood to the liver extract was exactly like that seen in pernicious

anemia and needs no further description than the accompanying chart. On June 7th, the reticulocyte count returned to normal and the dose of liver extract was reduced to two ounces daily, equivalent to about 500 grams of raw liver. On August 1st, the dose was again reduced to one ounce daily, equivalent to about 250 grams of raw liver, where it has remained since.

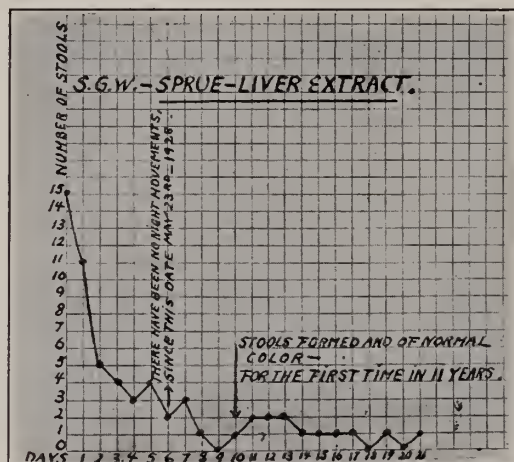


Chart II.—Effect of liver extract on frequency, consistency and color of stools in sprue.

Clinically, there is a most striking contrast between the patient's condition during the past few years and his present condition. He states that he feels ten years younger. He walks a mile or two every day just for the pleasure of the exercise. He has resumed his social activities which his frequent stools had made almost impossible during his illness. After the patient's heart had compensated and his edema and ascites had disappeared it was found that he weighed only 132 pounds which represented a weight loss of fifty-eight pounds. He has gained back fifteen pounds of this and further gain has been discouraged because of the condition of his heart muscle.

#### COMMENTS AND DISCUSSION

The use of liver in the treatment of sprue is by no means new. Richardson and Klumpp<sup>17</sup> note the fact that it has been in use in Ceylon for years and that the British School of Tropical Medicine recommends liver soup. T. H. Jamieson<sup>18</sup> also reports splendid results with liver soup made by boiling a pound of liver in a pint of water for two hours. The cooked liver is then grated into the broth for thick-

ening. This preparation is undoubtedly a crude aqueous extract of liver and contains the active principle which is responsible for bone marrow stimulation and regulation in the primary anemias,<sup>13</sup> and which seems to have had a very beneficial effect on the intestinal condition in this case. The only new idea suggested by this case is that in liver there seems to be some substance which has a specific effect on the pathological physiology both of the bone marrow and intestinal tract in sprue and that this substance seems to be the same one which is responsible for the remarkable remissions seen in pernicious anemia on liver therapy. If these conclusions be true, then the close relationship between sprue and pernicious anemia, which has been so often suggested in recent articles,<sup>2, 3, 4, 5</sup> would seem to be substantiated. It would seem also that the primary pathology in sprue is in the intestinal tract and that the monilia of Ashford is a secondary invader which may be gotten rid of by correcting the underlying intestinal pathology with liver feeding. The finding of the monilia in the stools of many pernicious anemia patients and in many other chronic diarrheas which could not properly be called either sprue or pernicious anemia, would also tend to place it in the role of secondary invader in sprue. The mycotic infection, however, undoubtedly brings with it a train of symptoms which alters the picture of the original condition, and it is perfectly conceivable that the mycosis may in time dominate the picture.

Since it has been shown that the substance in normal liver and kidney responsible for the bone marrow effect in pernicious anemia could not be classed as a vitamine, and indeed, from our present knowledge, seems to be a specific substance somewhat of the nature of a hormone or an internal secretion, the conception of sprue as a pathological condition caused primarily by a deficiency of this substance found in normal liver and kidney, with a superimposed mycosis, would seem to be tenable. The fact that the liver is usually much reduced in size and in many cases shows more marked atrophy than any other part of the intestinal tract is also suggestive, and the fact that liver therapy benefits these cases so remarkably seems to place the liver changes in the relationship of cause rather than effect.

This paper must not be taken to advocate



liver therapy only in the treatment of sprue, since it is the author's opinion that every proven means of combating the mycosis should be employed also; but from the facts here assembled, the necessity for correction of the primary abnormal physiology by liver therapy would seem to be the prerequisite to a permanent cure. The proof of the correctness of this conception of the disease lies in the therapeutic test. If cases so treated, do not relapse, as cases on all other methods of treatment are prone to do, then these conclusions would seem to be justified. Following up this idea, the patient, here discussed, has been instructed to stop his liver extract and has been placed on Ashford's sprue diet. He will be observed closely and a later report made.

#### SUMMARY

1. A patient suffering from tropical sprue with the primary type of anemia which he contracted in Porto Rico, has been treated by large doses of liver extract without dietary restriction and the results have been entirely satisfactory.

2. A new conception of sprue as a primary deficiency in some specific substance found in normal mammalian liver and kidney with a superimposed mycosis is suggested.

3. It is further suggested that correction of this primary deficiency by liver therapy may be prerequisite to permanent cure, though in addition to this, every proven means of treating the secondary mycosis should be employed.

4. The proof of this conception will be established if cases treated in this way do not relapse as cases on other methods of treatment are prone to do.

NOTE:—The liver extract used in the treatment of this case was made by the Valentine Meat Juice Company of Richmond, Virginia, for and under the direction of the Departments of Medicine and Biochemistry of the Medical College of Virginia. The efficiency of this extract has been proved by its employment in the treatment of many cases of pernicious anemia, both at the Medical College of Virginia and in several other large clinics. A full report on this product will be made in the near future.

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#### DISCUSSION.

DR. WILLIAM B. PORTER, Richmond: One can not listen to a report of this kind without being greatly impressed with the significance of the facts presented therein. A discussion of pernicious anemia in conjunction with a discussion of sprue brings up so many interesting factors of a corollary nature—those conditions which have as their predominating manifestation megaloblastic anemia—that we begin to wonder whether we shall not have to reclassify many of our so-called primary and secondary anemias. Addison, in his description of pernicious anemia, drew very clearly the lines on which one should make the diagnosis of this disease. He specifically stated that the patient should have definite neurological phenomena and symptoms of posterior and lateral cord involvement and achylia gastrica,



should not be undernourished but the subcutaneous fat should be well preserved, and that the patient should present a very definite lemon tint of the skin. At that time we had not advanced sufficiently far in hematology to describe in a clearly defined fashion the blood picture which we now believe to be characteristic of true Addisonian anemia. Undoubtedly there are many other conditions in which the Addisonian blood picture is present which are quite remote from the original disease which was described by this investigator. I refer to the anemia associated with the infestations of tape-worm, *Bothriocephalus latus*. Recently, a case was observed at Ann Arbor in which liver feeding was carried out with no attempt to relieve or remove the infestation. The reactions were exactly those following the administration of liver to cases of pernicious anemia. It is rather interesting to note in this particular type of disease that the hydrochloric acid curve is quite adequate. One could never associate the anemia in this disease with an achylia gastrica, and we all believe now that the achylia gastrica of Addisonian anemia is due to a specific type of chronic gastritis and that one need not expect a return of normal hydrochloric acid. What does all this mean? It probably means this, that there are various clinical conditions in which there is absent either primarily or secondarily that substance which promotes or allows the maturation of red cells, and this particular substance can be supplied by the feeding of liver or kidney or (to a lesser extent) muscle tissue predigested.

A good deal has been said this morning about the blood picture of pernicious anemia. I think one must get pretty clearly in his mind what is back of this blood picture. One of the authors classified this anemia as hemolytic. I do not believe, in the light of our present knowledge, that we are justified in saying that hemolysis is the primary factor in the production of any of those megalocytic anemias which have been spoken of this morning. The characteristics of bone marrow in various types of anemia were shown quite a number of years ago. When one looks at a normal bone marrow he finds there are scattered through the bone marrow little erythroblastic islands. The young cells tend to crowd toward the center, with the maturer cells coming toward the margin of these islands. These are scattered in beds of marrow fat. In pernicious anemia the bone marrow is exactly opposite; it looks as though one were dealing with a tumor of the bone marrow. The bone marrow is packed with young blood cells, and as soon as we give this unknown substance they immediately mature and are released into the blood stream.

### RADIUM AND SURGERY.\*

By HOWARD A. KELLY, M. D., F. A. C. S., Baltimore, Md.

I have come to Washington, N. C., at the behest of Dr. Joshua Tayloe, one of my warm old personal friends for about a quarter of a century. I was attracted, too, by the memories of the hospitalities experienced in the distant past and often renewed at the hands of Dr. John Rodman, the Drs. Blount, and the Drs. Nicholson, including my friend Dr.

Dave and the promising next generation of Tayloes, not forgetting among others Aunt Marcia in her ripe old age and Miss Lida Rodman, the historian of Washington and things colonial. There still linger memories of the good old days when the world seemed young and teeming, of shooting geese and ducks down at Okracoke and of watching on a runway at a deer hunt over across the Tar River, near that very swamp where our valorous Dr. John, above cited, some years ago saw the big black bear in the road in front of him as he was hastening homeward one never-to-be-forgotten night at about one A. M.! Perhaps I should amend my statement in the interest of scientific accuracy and say that the horse, pulling the buggy and Dr. John contentedly homeward first saw that bear, for it was only when the horse began to kick up didos that the somnolent Dr. John awakened to the fact that an incoherent black wobbling mass was ahead forming an obstruction of some sort impeding traffic. I think I hardly need add that ever since that memorable date, Dr. John totes a big gun and is awake ready for action when in that locality.

As I write out my brief address before the Seaboard Medical Association, need I recall that the numerous progressive changes I found in Washington have not in any degree cooled the kindness, the hospitality, the spontaneity, and the affections of the Washingtonians; I discovered in the hospitable home of Mr. Fowle where I was entertained a younger generation endued with all the virtues of their ancestors—no small praise in these days. Alas, only today, the sad news reaches me of the departure of dear old Dr. Josh, as he is lovingly called, after a long life of devoted service over a wide territory—a noble, big-hearted man, rich in the breadth of his varied experience which he has handed as a heritage to nephews of high ability. Washington will seem different without Josh's familiar hearty welcome and the solicitous interest which endeared him to his many friends. How appropriate here, as we bid farewell to so gracious and loved a form, to sound the lines of Halleck written about a hundred years ago on the occasion of the early death of his intimate friend Dr. Drake:

"None knew thee but to love thee  
Nor named thee but to praise."

My purpose in writing about radium and

\*Address given by invitation before the Seaboard Medical Association of the Carolinas and Virginia, at Washington, N. C., December 5, 1928.

surgery is to emphasize the fact that radium does many things far better than exsective surgery and that it also does a number of things surgery cannot do at all, and to urge that it is high time on all sides to take note of this new radium field and to give it every opportunity to do its legitimate work. By neglecting to use radium in its appropriate fields, one often does not simply turn to surgery as a suitable and equally effective alternative, but does actually condemn patients to unnecessary suffering, invalidism, and even to death, who might have been saved by the more effective remedy.

After twenty years' experience with radium, I feel well assured in the position I take, and I am ready to enlarge my theme with any one courteously inclined to differ.

I know no better way to present this subject than to review with you sundry groups of cases any man in general practice is likely to run across, touching which he would be likely to want information as to the use of radium. Let me premise by saying that radium is by no means co-extensive with X-ray therapy. The gamma rays of radium are far more effective. Therefore, affections which have proved utterly refractory to X-ray often respond promptly to radium. I venture to hope that my presentment of the matter will aid in securing an installation of radium in many clinics. Let us consider some of the groups suitable for radium therapy.

CANCERS OF THE FACE are practically all radiosensitive; a rightly adjusted dosage clears up most of them, usually with a single treatment. Prompt and early treatment greatly enhances the chance of cure. Should one prove radioresistant, it calls for extirpation under local anesthesia with electrosurgery, a brilliant coadjutor in a long line of ailments.

I hardly think we realize even yet the enormous boon conferred upon our race by these facts stated in so few words. With the present quickened sense of the body politic as to the risks in neglecting a chronic sore on the face, we are not likely to see again those frightful raw, completely eaten-out faces, mouth, nose, and eyelids, with hanging eyeballs, which used to turn up occasionally, seeking euthanasia in our large hospitals. The advantages of radium are especially obvious when the lesion is in the neighborhood of EYE

OR NOSE. Practically all cancers of the LIPS are also extremely radiosensitive, yielding a permanent cure with but one or two treatments. There is no longer any excuse here for surgery with its unsightly deformity in the advanced cases.

The same can be said of CANCERS OF THE MOUTH, TONGUE, and FAUCES, only here more judgment and experience are necessary in adjusting and distributing the dosage and equalizing the crossfiring to secure an effective application and avoid irritation. This remarkably favorable radiosensitive group is notoriously unfavourable for exsective surgery.

In all the above, one must watch the GLANDS IN THE NECK and, if deemed advisable, make a clean dissection. Where there are solid fixed masses in the neck, radiation is often beneficial applied both directly over and by implantation under the integument.

From time to time, CANCER OF THE LARYNX yields beautifully to massive well-distributed external radiation, having due regard to the lesser vitality of the cartilage.

It is a natural transition from cancers of the skin to PIGMENTED NEVI and other skin blemishes, on the whole, I think, better treated by electrosurgery. Only occasionally does a mole yield to radium. The caution is not wasted when I note that whatever is done must be radical and the outer zone of the extirpation must be laid well outside the extreme limits of the affection.

One of the most delightful experiences in the use of radium is its behavior with ANGIOMATA. From the smallest to the greatest these are in a high degree sensitive to mild radiations. One should never use a heavy dosage, as it is pretty certain to delay further applications by the local irritation it causes, making additional treatments even impossible. *Poco a poco*, little by little, with the radium in moderation and after a few months or more, presto! the growth (for such it is) is gone.

PORT WINE STAINS are blanched in the same way, at one sitting. The temptation to do too much at a sitting is great especially when the patient is poor and lives at a distance.

MIXED CANCER OF THE THYROID is remarkably responsive to ray therapy, which often even takes care of the recurrences after an unsuccessful operation.



BREAST CANCER with a good operable risk is surgical; however, if for any reason, operation is out of the question or if the growth is too advanced, or if it is a matter of a recurrence after operation, then radium proves a great boon in a palliative way.

IN MASSIVE ULCERATIVE DISEASE OF THE BREAST, great relief is afforded by the removal of the mass with electrosurgery followed up by judicious radiations.

One of the most astonishing revelations in radium therapy has been the control it has over CANCER OF THE BLADDER; a large percentage of these heretofore hopeless patients have been cured over periods of years. Like all other cancer patients, they must imperatively be kept under observation for several years or more.

CANCER OF THE RECTUM, like cancer of the bladder, is another of the utterly unpredictable favorable groups for our ray therapy.

In both of these organs, fortunately, in large percentage the disease long remains localized, and advanced affections even to the end often show no metastases. Here, too, the adenocarcinoma melts away under effective radiations. Both groups also exhibit these several fortunate circumstances: first, in that adenocarcinoma yields readily, and, second, in that it lies on and in the walls of a viscus, and third, that it does not often metastasize early and, again, it is readily accessible.

Electrosurgery can play a large part cooperatively by removing the more massive portions of the disease (particularly with the acusector) leaving a well-circumscribed outline for treatment as the radium is applied effectively on all sides, especially over the margins of the area where the disease is spreading. The only difficulty lies in securing within each viscus a well-planned, effective adjustment limited to the area needing treatment. If the rectal disease is down in the ampulla, the application is often best made under the guidance of the finger, with the patient in the lithotomy position. Higher up, the knee-breast posture and conical or cylindrical specula are essential. When enough radium is available (one or more grams), either here or in the bladder effective treatments can be given in ten or fifteen minutes, to be repeated in the more extensive cases at intervals of a day or two, until the amount calculated for the whole area is reached.

CANCER OF THE VAGINA, so awkward to handle surgically, yields with surprising readiness with results which are permanent if the disease has not extended through into the paracolpium with fixation.

CANCER OF THE CERVIX constitutes an area where, by general agreement, at last, the profession has about decided that it is better to use radium than to operate, a rather surprising conclusion as these cervical cases are not an easy group to handle. It is, however, conceded on all sides that radium does at least as well as, if not better than operation, while it avoids the pain of the convalescence and its various accidents as well as the mortality of the operation *per se* which is no small matter.

CANCER OF THE BODY OF THE UTERUS is pre-eminently surgical; extirpation is always to be elected in the absence of any serious contraindication. It not infrequently happens, however, that one handling a large group of patients encounters individuals who either emphatically refuse an operation or who by reason of age or debility or some other complicating condition constitute a bad operative risk. In such, driven to the wall, I have been obliged to depend wholly on radium applied both directly within the uterus and suprapubically and through the sacrum *ab externo*, often with surprisingly good results. Almost invariably, there has been a marked improvement and occasionally even a cure has been effected. I venture to predict that we shall in time even here reach the point of relying wholly upon radium when the organ is not enlarged by invasion of the disease and when the tactile sense in the act of making the curettage suggests that the trouble is superficial and perhaps localized, as further confirmed by the gross appearance of the curettage and the microscopic examination. A woman so treated ought to be curetted again in six months for the microscope, however much she may have improved in the interval, in order to justify the conclusion that the treatment has been effective. She should, of course, be followed up carefully for several years.

Radium is far better than surgery in most FIBROID TUMORS, exceptions being made where there is a reasonable doubt as to the diagnosis and when there is a complicating lateral inflammatory disease or an ovarian tumor. Touching the limitations of radium in this



field, there is no such rule of thumb, as many allege, that it is contraindicated because ineffective in large tumors extending above the level of the umbilicus. Before treating one ought always to curette to make sure that there is no cancer of the mucosa. If hemorrhages have been the trouble, it is my habit to tell the patient that they will cease and that the tumor will shrink and may even become insignificant in size and perhaps, as in a considerable percentage, disappear entirely, and that she shall rest content with any of these alternatives, and keep under observation.

Several errors I have made in my diagnoses in a large number of these tumors have not shaken my conviction that radium therapy is by all odds the best possible treatment for myomata.

SIMPLE BLEEDING UTERI at about the time of the menopause are practically invariably amenable to radium therapy. Unless other complications demand it, operation here is antiquated and unjustifiable and should be completely superseded by the simpler, safer procedure. This alone constitutes one of our greatest recent boons in gynecology, best appreciated perhaps by those of us who have in the old days operated repeatedly on many of these distraught exsanguinated women.

Of all the blessings, however, our radium therapy has brought in its entail and of all the startling revelations of its efficacy, not one, I venture to aver, either in this or in any other field, surpasses that of its efficacy in two diverse yet clinically somewhat similar diseases, classified here for convenience in discussing their therapy under one head—HODGKIN'S DISEASE and LYMPHOSARCOMA. No group of cases so startles the ray therapist and the patient himself as these often massive nodules which melt and speedily disappear under a well-planned treatment. I recall one of the first, an old aboriginal hailing from Missouri, who had a huge mass projecting like a penthouse out from his forehead, probably periosteal in origin; the whole thing vanished, apparently "evaporated," and was gone in a few days. The astonished patient asked me, awestruck, "Doc, where did it go to?" Both of these groups tend to recover permanently just in proportion as the disease is seen and attacked in its earlier stages. Later on, a permanent recovery is possible but less common; the immediate amelioration, however, is

still remarkable and may last for months. Experience teaches that it is vitally important to watch for developments later in other parts of the body. The control of these diseases even in their distressing intrathoracic manifestations is equally effective.

In conclusion, let me recapitulate the lessons inculcated by experience. Our field is still new and, with more observation and better judgment coupled with judicious experimentation, there is a well-founded expectation that we shall witness such further refinements in treatment as will markedly improve results, especially as to permanency.

Again, let me place great emphasis on the vital importance of seeing the patient as early as possible and the equally important dictum of keeping patients for a long time under regular, skilled observation.

Our therapy often calls for the effective co-operation of general surgery and of electrosurgery. It not infrequently happens that an extensive fixed, infiltrating mass of disease shrinks down to one persistent movable nodule. This calls for prompt surgical extirpation or thorough electrosurgical coagulation.

Broder's classification of malignancies is valuable as a general guide, but from time to time, owing to individual differences in radiosensitivity, those which seem least promising actually yield excellent results.

Tissues nearest the embryonic status are as a rule most responsive, to our great surprise bringing many of the worst risks surgically under control.

If radium had succeeded in only one of the groups I have mentioned, that decade in which it was discovered would deserve to go down to posterity as a landmark in the history of medicine. How thankful then we should be for such a long list and such heterogeneous affections brought under the control of these new agents.

Finally, if no case were ever cured, so excellent are the palliative results that I would go on using radium with the utmost satisfaction.

1406 Eutaw Place.

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Drop a word of cheer and kindness,  
Just a flash and it is gone;  
But there's half a hundred ripples  
Circling on and on and on.

—Selected.

### CHRONIC ARTHRITIS.\*

By J. LAWN THOMPSON, A. M., M. D., Washington, D. C.  
Chief Medical Service, Providence Hospital; Consulting Physi-  
cian, Casualty Hospital; Clinical Professor, George Wash-  
ington University Medical School; Clinical Professor,  
Georgetown University Hospital.

Chronic arthritis is a discomfort to which the human being has been subjected from time immemorial, and, while the patient has suffered the bodily anguish, the physician has had the mental anguish. There is no condition that has had more consideration with less satisfactory results than chronic arthritis. Since the recognition of focal infection and the removal of such foci, the incidence of primary cases has been lessened and, if we can educate the laity to the advisability of surrendering to medical observation at the inception of joint discomforts, this stubborn disease may in time be able to be entirely eradicated. Unfortunately, most individuals will attempt home cures and outside suggestions before they seek medical advice. In the treatment of this condition salicylates have by long odds been most beneficial. Thyroid and thymus extracts, sun baths, sand baths, hot spring baths, diathermy, autogenous vaccines, intravenous foreign proteins, radium, etc., have all had their trial. I have used them all with mediocre success. Many quack remedies have also had their turn and we cannot blame the sufferer, for one would naturally go to any extreme to get even a moderate relief from the severe, painful multiple arthritides. While seeking a remedy for this condition, Young and Youmans, of the University of Michigan, have been using orthoiodoxy benzoic acid intravenously in the treatment of chronic arthritis and have reported a series of cases which include gonorrhoeal, acute, atrophic and hypertrophic forms, which showed marked improvement in 56 per cent of their cases, moderate improvement in 23 per cent, slight improvement in 14 per cent, no improvement in 3 per cent.

Laboratory experimentation has shown that the organic compound, ortho-iodoxy benzoic acid, has a high germicidal action against staphylococci, streptococci, and gonorrhoeal arthritis, and arthritis deformans also has been claimed to have been improved in 64 per cent of cases. "This substance", quoting Millard Smith, "is in structure similar to the salicylates, except that it contains iodine and readily available oxygen. Its action is similar to the salicylates but is many times more effective".

It may be given by mouth but is more effective when administered intravenously. Millard Smith, of the Boston City Hospital, following the routine of Young and Youmans, found beneficial results in the treatment of 33 cases. James E. Cottrell, University of Pennsylvania, reports a small series of cases, including acute, sub-acute, chronic, and gonorrhoeal infections, in which he feels that 80 per cent were benefited. Trauba, in the *Journal of the American Medical Association*, October 1, 1927, also reports a series of multiple infectious arthritis in which he noted 64 per cent improvement. It must be remembered that the use of the drug is in its infancy and no 100 per cent cures are claimed. Furthermore, all the investigators insist that routine examinations of the patient must be made, careful histories taken, all sources of infection removed, and, after the medical treatment which almost immediately gives relief from pain and induces relaxation of muscle spasm, orthopedic measures must be instituted, such as the straightening of deformities, putting parts in casts if necessary, massage, baking of the parts, and in some cases diathermy. Diet, also, plays an important role, we having used Friedenwald's arthritic diet. From my experience in a limited number of cases, I feel that much can be done to benefit these poor individuals. If we can do no more than arrest the progress of the disease and allay the pain, especially that of arthritis deformans, we will, indeed, confer a benefit upon mankind.

I will not impose upon you the history or the chemical properties of this drug, but will refer you to the excellent papers of Young and Youmans, of the University of Michigan, Millard Smith, of the Boston City Hospital, James E. Cottrell, of the University of Pennsylvania, and Trauba in the *Journal of the American Medical Association*.

Our method of procedure in treating these cases is that pursued by the foregoing writers, with the exception that we administer one-eighth grain of morphine ten minutes prior to the administration of ortho-iodoxy benzoic acid. This morphine is given to control the nervous apprehension and to minimize the reaction of the drug.

The apparatus that we use is a salvarsan gravity tube, capacity 500 c.c., about 1½ inches in diameter. Five feet of soft rubber tubing of very small caliber is attached, not only to

\*Read before the Section on Internal Medicine, Medical Society of the District of Columbia.



the gravity tube but to a Kauffman Luer syringe. By this method of administration we can control the flow of the medication into the vein by lowering or elevating the container at will. I mention our method of administration, as I have seen others use 100 c.c., syringes which are unwieldy, tiresome to handle, and the time of administration cannot be controlled. *This control of the inflow is most important*, as the more slowly the drug is given the less the reaction, and *vice versa*. The drug may be given orally, or by rectum, as well as intravenously, but is not as effective as when given intravenously. One gram of the salt is dissolved in 100 c.c. of freshly distilled water or normal saline solution at body temperature. The solution may be stirred to hasten the dissolving of the salt, but, according to the manufacturers, the drug must not be boiled. Care must be taken not to allow the drug to come in contact with the flame, as it is of an explosive nature. Some writers on the subject give a maximum time of ten minutes for the administration, but we have found that from twenty to twenty-five minutes reduce the reaction to a minimum. When the fluid leaks outside the needle insertion, the individual complains of burning pain similar to that noted when salvarsan escapes into the perivascular tissue. The reaction to the drug is manifested first by slight pain along the course of the vein, burning, itching in the mucous membranes of the nose, mouth and eyes, and constriction in the chest, griping pains in the bowels, diarrhoea, nausea and vomiting. These symptoms are only manifested when the drug is given rapidly. Only one of our patients had a severe reaction and this was due to the fact that our gravity tube was broken and we had to use a large 100 c.c. syringe and the drug was administered probably too rapidly.

#### CASE REPORTS

(Normal Salt Solution is used before and after the oxoate).

Miss C. C. white, age 50, single, occupation nurse, was admitted to Providence Hospital April 15, 1927. Chief complaint—pains in the legs, head and knees. She had suffered from such pains for the past five years. About April 10th she stuck a needle in a finger of the left hand. Infection followed and she was sick about ten days, during which time she had chills and fever, pains in both lower

limbs, ankles, and the large toe on each foot became very much enlarged and painful. The arthritis was treated from April 23rd to July 21st, during which time salicylates, physiotherapy, hot Epsom salts compacts and other remedies were tried. She had to have anodynes and opiates in some form every night to induce sleep. She was unable to walk on account of the intense pain and had not had her shoes on during this three months' period. On August 21st she was given 1 gram of oxoate intravenously. She had slight reaction but that night slept for the first time without an anodyne. The oxoate was repeated on the 21st and 27th of July, August 11th, 17th and 22nd. After the third treatment she was able to put on her shoes and began to walk, and having been in the hospital so long, she decided to go South to visit relatives and was discharged on August 31st, cured.

J. B., age 67. Chief complaint—stiffness and soreness all over the body, especially in the sacral region. Family history, negative. Severe rheumatism 1925. Present illness began December 26, 1927, with pain across back and shoulder; spread down back to the region of the hips. Feet then became swollen and painful. Admitted September 30, 1927, to the hospital. Salicylates were given a fair trial, with no great improvement. October 2nd, oxoate, 1 gram, was given. Repeated October 13th. Reaction not marked. The third dose was administered October 21st. Patient feeling very comfortable. The soreness and stiffness markedly relieved and the patient was able to walk around without the aid of a cane, which he had been using a long time. Left the hospital greatly improved.

J. Z., age 34. Admitted to the hospital June 22, 1927. Chief complaint—generalized rheumatic pains. Had G. C. infection recently. Present illness began June 3rd with pains in the shoulders, hips and feet; rapidly spread to arms, hands, hips and knees. Diagnosis, multiple arthritis. Treatment was routine hygiene, dietary and salicylates. No improvement noted. July 9th, 1 gram of oxoate was given intravenously, with slight reaction. Two days later marked improvement was noted, except the left knee. On the 16th, the same medication was administered with practically no reaction and the patient was feeling so well that he left the hospital on the 18th.

M. H., age 21, colored. Admitted October



11, 1927. Chief complaint, pain deep in bone of thigh, from hip to knee. Present illness began in April, 1927, having had severe sore throat. She was in bed four months with this painful limb. Condition at a standstill for three months. She entered the hospital, having to use a cane for support on account of the pain. Diagnosis—sciatica. Treatment, as in other cases, was hygienic, dietary and salicylates. She left the hospital October 16th, having refused oxoate treatment. She came back a week later and consented to the intravenous therapy. This treatment was administered twice a week for three weeks, at the end of which time the movement of the hip was almost perfect and the patient got around without the use of the cane, practically cured.

C. R., age 19. Admitted September 8, 1927. Chief complaint swollen and painful right knee. Present illness began August 24, 1927, with chills, fever, and general malaise. Used home remedies, until coming to the hospital, for pain in the knee. Diagnosis, acute arthritis. Treatment, magnesium sulphate compresses, external heat and anodynes. Practically no improvement. September 17, oxoate, 1 gram, given intravenously. Slight reaction. On the 18th the muscle rigidity lessened and the patient felt comfortable. On the 22nd and 26th, oxoate was repeated. Patient was markedly improved, the swelling had subsided and he was free from pain. Was discharged October 2nd and told to come to dispensary, but as he did not return, we infer that the condition was cured.

Mrs. E. B., age 57. Chief complaint was pain in right knee. Present illness began two years ago. Constant pain in knee and at times swelling and pain in wrists. Diagnosis—arthritis. Admitted to hospital July 15, 1927. Usual routine treatments were carried out with no improvement. On August 19th oxoate was used intravenously. Violent reaction was observed. Next day patient was freer from pain than she had been for months. Oxoate was repeated on the 23rd. At this time there was very little reaction. On the next day the pains in the left knee and left wrist had subsided. On September 1st, another intravenous treatment was administered, and the patient, feeling so much better, discharged herself in a markedly improved condition.

Mrs. M. M., age 50 years, had been suffering from pains in both knees and ankles for the

past five years. Her obligations were such that she could not take the time for intravenous treatment with the possible reaction, so we decided to put her on an arthritic diet and administered the oxoate by mouth, using external heat every evening. After taking the medication over a period of two weeks and reducing her weight about ten pounds, she felt very much better. She then commenced to have intestinal disturbances in the nature of cramps and diarrhea which were attributed to oxoate. This was discontinued for a week and, when the disturbed intestinal symptoms subsided, the treatment was resumed and adhered to for two weeks longer. She has now been entirely free from pain for the past two months; has reduced about twenty pounds, and is feeling in excellent condition.

Mr. J. G., suffered from pain in the cervical region for the past five months, becoming progressively worse. Rotation and flexion of neck caused great pain, radiating to both shoulders. Feels a crackling sensation when moving head. X-ray shows cervical arthritis. Usual remedies administered with no result. Two treatments with oxoate gave him great relief. He can now flex and rotate his head with but little discomfort, and I feel a very few more treatments will arrest the condition. The diagnosis in this case is cervical spondylitis.

Dr. K. G., ill four years, had advanced arthritis deformans. All vertebrae and large as well as small joints were involved. Cannot lift his arms sufficiently high to feed himself. X-ray shows generalized arthritis. Was taking fifty grains of aspirin a day for pain. After second administration of oxoate, he could raise his arms sufficiently high to convey food to his mouth. A week later he could be lifted, and would sit on the side of his bed at meal time. The aspirin was discontinued after the second dose, and he suffered no discomfort. Unfortunately this patient contracted pneumonia and died. He was unquestionably markedly benefited by the treatment.

Those who have written before on this subject have given the sum total of their results, but I thought it would be interesting to cite the above cases to demonstrate the variety of arthritis that may be benefited by this treatment.

I wish to state, in conclusion, that we have been very careful in history taking, physical

examinations, the removal of all sources of focal infection, and have instituted orthopedic and other lines of treatment when indicated.

*The Farragut.*

## ACRODYNIA—WITH REPORT OF SEVEN CASES.\*

By CHAS. E. CONRAD, M. D., Harrisonburg, Va.

In 1919, Bilderback had a group of ten interesting cases which he considered different from any previously classified disease. He submitted case reports of these to Dr. J. L. Morse, of Boston, who in turn referred them to Dr. W. Weston, of Columbia, S. C. After careful study, Dr. Weston decided the condition was not pellagra, and applied the name acrodynia to the disease. In 1920, Byfield reported seventeen cases. Numerous cases have been reported since 1921. In 1914, Swift, in Australia, reported fourteen cases, and applied the name "erythredema" to them. Other names applied have been "pink disease" and "dermato-polyneuritis." The word acrodynia is derived from the Greek words meaning extremity and pain, or painful extremities.

*Etiology.*—Different views have been expressed as to the etiology, one, that it was a vitamine deficiency disease, but a majority believe it is a chronic intoxication secondary to some infection of the upper respiratory tract. Why, with the great prevalence of upper respiratory diseases, only a few develop acrodynia is not explained, except that it is possibly due to a specific organism. In one report I noticed two cases reported in the same family. An interesting fact in my seven cases is that four were secondary to measles or to an upper respiratory infection coincident with an attack of measles.

P. Woringer, in an article reviewing the observations that have led to the conception of acrodynia as a definite clinical entity, says:

"Although no underlying anatomic lesion has been discovered to account for the many symptoms, the author feels that the various phenomena may all be explained by a functional disturbance of the vegetative nervous system.

"The apathy, depression, fatigue, the abundant perspiration and salivation, the moisture and the coldness of the extremities, and the urticaria may be accounted for on the basis of

a vagotonia. The insomnia, tremor, hypertension and tachycardia fit in well with an over-stimulation or derangement of the sympathetic system. Whether there is a toxin in the system that is elective for the vegetative nervous system or whether the glands of internal secretion are at fault is at best only a conjecture."

*Symptoms.* — The leading symptoms are hyper-irritability, a peculiar cyanotic dull red condition of the hands and feet, unlike pellagra in that it does not have a well-defined border, with a cold, clammy feeling—palms of hands are very moist—often with a moderate degree of swelling and desquamation and a miliaria type of rash. Photophobia is present to a varying degree. Four of my cases had it to a marked degree. With the hyper-irritability and fretfulness which they show even when held by their mother, there exists a sleeplessness and restlessness that would indicate a general peripheral polyneuritis affecting the sensory and trophic nerves.

Anorexia, weakness, and loss of weight also occur. I think, as a group, they are the most unhappy children I have ever observed.

*Prognosis.*—The prognosis for ultimate recovery is good, but usually the disease runs from three to nine months. Death, when it occurs, results from some intercurrent disease.

*Treatment.*—So far, treatment has been very unsatisfactory. Look after the general nutrition of the patient. Some have reported good results from ultra-violet radiation. Rodda reports excellent results from removal of tonsils and adenoids. So far, drugs have been useless.

### CASE REPORTS

*Case 1.*—This case occurred five years ago, and I was unable to find the history, but it followed chickenpox and acute otitis media and badly infected throat.

The symptoms were extreme photophobia, red, swollen hands and feet, marked sweating and desquamation, and the patient was very restless and fretful. Recovery in about three months.

*Case 2.*—J. P., May 14, 1926. Age, eighteen months; male; history of diarrhoea three weeks before signs of acrodynia; recovered in seven months.

The chief symptoms were fretfulness, crying most of day and night, hands and feet dull red, sweating—cold and clammy—with

\*Read at the October meeting of the Medical Association of the Valley of Virginia.



desquamation, weak, sore mouth and loss of appetite.

*Case 3.*—J. C. M., May 14, 1928. Age, fourteen months; male; measles three weeks before onset of acrodynia. Has been sick four months; shows decided improvement, but not recovered.

The chief symptoms were fretfulness, irritability, photophobia, fine miliaria rash over body, hands and feet cold and clammy, dark red color and desquamating. Developed punched out ulcers on buttocks; blood Wassermann negative; appetite poor; diarrhoea. Much of time lies in flexed position, with straining, and has had prolapse of rectum. Markedly improved in last two weeks.

*Case 4.*—I. C., August 7, 1928. Age, thirty months; female; acute otitis media seven weeks before acrodynia. Recovered in eight weeks.

The chief symptoms were fretfulness, irritability, photophobia, hands and feet red, cold, skin macerated and desquamating for two weeks when seen. Stays in flexed position with straining, and at times a prolapse of rectum.

*Case 5.*—D. D., July 24, 1928. Age, eleven months; female; measles and acute otitis media two weeks before beginning of acrodynia. Recovered in seven weeks.

The chief symptoms were fretfulness, irritability, miliaria type of rash over body; hands and feet dull red, cold, clammy, with slight desquamation; loss of appetite, and weak.

*Case 6.*—Wm. W., August 22, 1928. Age, two years; male; had measles eight weeks before symptoms of acrodynia started. Recovered in four weeks.

The chief symptoms were miliaria rash over body, irritable, with crying spells; dull red swollen hands and feet.

*Case 7.*—A. B., September 30, 1928. Age, three years; male; no definite history of preceding illness. Has been sick eight weeks; improved.

Chief symptoms are weakness, poor appetite, photophobia, very fretful and irritable, fine miliaria rash on body; hands and feet red and cyanotic, cold, clammy, which marked desquamation.

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One asks for sun, an' one for rain,  
An' sometimes bofe together;  
I pray for sunshine in my heart,  
An' den forgits de weather.

—Ruth M. Stewart.

## OPERATIVE ASPIRATIONS FOR A CO-OPERATIVE HOSPITAL ASSOCIATION.\*

By JOHN BELL WILLIAMS, Richmond, Va.

Department of Administration, McGuire Clinic,  
St. Lukes Hospital.

What shall be the purposes of this newly organized Association? Shall it be just another of the thousands of groups who gather together with no specific plan or purpose; shall it adopt a high sounding ritual of impractical phrases; shall it content itself with attempting to solve only one or two of our major problems, or shall it adopt broad policies covering the entire field of hospital operation together with the provision of machinery to put its policies into practice?

With the kind permission of the President, I have restricted my paper to a discussion in general rather than in detail of a series of subjects that seem vital to successful hospital management. This, I do with the assumption that these general ideas may lead to concrete plans, upon which we may build a substantial structure.

### HOSPITAL STANDARDIZATION.

Virginia hospitals were formerly known as homes for the sick and were operated on about the same plan as boarding houses. As years passed, these institutions developed into hospitals along entirely independent lines and without any idea of uniform plans.

The necessity for standardizing hospitals was at length recognized by the American College of Surgeons who crystallized the full duties and responsibilities of hospitals by setting up minimum requirements for official recognition by this College. This standard has been in effect for over ten years without much modification, but it has caused a great improvement in the operation of our hospitals. The College, realizing that extreme care must be taken not to destroy the initiative of any hospital, has made the requirements for recognition simple, practical, and adaptable to all types of institutions caring for the sick. Its objects are to promote better hospitalization in all its phases, that patients may receive the most efficient attention that medical science can provide.

It is encouraging to know that eighty per cent of Virginia hospitals that were examined

\*Read before the second meeting of the Virginia Hospital Association, at Danville, Va., October 16, 1928.



by the College are meeting these requirements. But what of the other twenty per cent and of those not examined at all? Would it not be a worthy achievement for this association to be the means of helping to bring them up to these requirements, so that Virginia would rank high among the states of the Union in providing the best facilities for the suffering?

#### TRAINING HOSPITAL EXECUTIVES.

Just as the present hospital has evolved from a home for the sick, so have the complex administrative and intricate financial affairs of hospitals grown to such proportions that specially trained executives are now needed to replace the matrons. Nurses are becoming of more and more value to doctors and are given professional responsibilities never dreamed of years ago. Doctors are devoting more and more thought to study and investigation. The result is that neither nurses nor doctors have the time necessary for administering the business affairs of a hospital. Consequently, there has developed a new type of medical adjunct who devotes his entire time to hospital management. These executives are becoming recognized as profitable attaches to small as well as large hospitals. Marquette University, in granting honorary degrees to outstanding hospital executives and in establishing a college of hospital administration, has taken a great step forward along this line. While the training of such an executive is still in an evolutionary stage, it is generally believed that he should at least have some of the following qualifications:

1. He should have a professional point of view, with a knowledge of medical history sufficient for him to practice a system of ethics.
2. He must be capable of bringing well thought out plans to the hospital directors.
3. He must be able to carry out the wishes of the board with neatness and dispatch.
4. He should possess a mechanical turn of mind.
5. He must understand and supervise the calculation of balance sheets, cost figures, and records.
6. He must understand buying and market quotations.
7. He must feel a deep interest in community welfare, and be well versed in matters of public health.
8. He must know something of the science of education.

9. He should know something of medical jurisprudence.

10. He must not be buried in routine clerical work.

These executives always work under a governing committee of doctors from the staff which acts as a regulator. Hospitals must be organized into various distinct departments, such as that of dietetics; buying, storing, and issuing supplies; a training school for nurses; bookkeeping, accounting, etc. These departments are all intimately interwoven into the management of any successful institution. The manager must be responsible for the success of the hospital and cannot be so without sufficient authority to control all of these departments in so far as they have anything to do with the business administration.

It appears evident that a medical course, a nursing course, or a business course is not planned to prepare people for these positions. Hence, we may profit by asking our medical schools at Richmond and Charlottesville to consider the establishment of short courses of study to which we can send men and women who desire to take up this important work.

#### WHAT IT COST TO BE SICK.

There is probably no one question that is receiving more discussion than the subject of what it costs to be sick. Realizing the value of exact data, the American Medical Association has created a national committee to analyze this involved and confused situation. This committee is working on a five-year program. It is composed of private practitioners, specialists, United States Public Health representatives, state health commissioners, nurses, economists, and representatives from the general public. Its work is financed by the profession together with several large foundations. The budget for this investigation will be about seventy-five thousand dollars a year. This seems a lot of money to lay out for an investigation, but it shows the value of the desired end in the eyes of the profession.

This committee will study not only the cost of medical care to the family, but also the remuneration to the doctor. I am informed by a member of this committee, Dr. J. Shelton Horsley, that this survey will include the operation of hospitals. The value of this study to us can be seen from a similar survey made by the Department of Labor on the costs of medical and hospital care as applied to the

laboring man. In showing that the cost of hospital operation has increased one hundred and thirty-three per cent from 1913 to 1926, it also shows that the cost to patients has increased only sixty-six per cent and that a further reduction has been made since the average length of stay in the hospital per patient has been reduced from fifteen days in 1913 to twelve days in 1926. In developing these interesting facts, this report further reveals that four Chicago hospitals and seven hospitals in different parts of Pennsylvania, all of which were examined for this particular report, now charge from \$3.15 to \$4.00 a day for ward beds which is about as much as many Virginia hospitals can charge for private rooms.

This opens up the whole question of hospital finance, a subject which has always demanded and will always demand our study and attention. The attitude of the public on this subject is based upon tradition. The hospitals founded during the early centuries of the Christian era were originally developed in connection with monasteries and were the outcome of the spirit of charity. Their purpose was to extend hospitality to the destitute and the homeless and to the traveller who had no shelter in case of illness. In England, until the nineteenth century they were for the poor only. In the United States, the earliest hospitals were likewise for those unable to pay.

After having regarded hospitals as charity organizations for so many hundreds of years, we can hardly expect the public, in one generation, to readjust itself and to pay for its actual hospital expenses as a matter of course. The prevailing opinion seems to be that the well-to-do are paying for their hospital services while the poor are being cared for by the state, city, county, or private contributions. This is an entirely mistaken belief. A properly managed private hospital which does not pay its stockholders a fair return in the form of rent for money invested in property, is not requiring its patients to pay for the whole cost of hospital care. When this interest is not paid to the stockholders, but goes to meet expenses of patients who are unable to pay, it represents a contribution on the part of the owner, just as though cash had passed as a personal donation.

The worthy man who chooses medicine as his life's work feels it a privilege to give of his time and talents to those who are so unfortunate as to be unable to pay for his services.

This does not mean that he should be expected to cripple his efficiency by the continual financial harassment of providing them with a home, a bed, food, and a nurse.

A charity hospital or a semi-charity hospital necessarily has a deficit. Those who meet this financial deficiency may possibly presume that the more the deficit the greater has been the amount of good accomplished. This assumption may be entirely erroneous unless there is well founded reason to believe that the hospital has been properly managed, and evidence that all charity patients were unable to pay anything. The report of the United Hospital Fund, of New York, reveals, for example, that thirty years ago the hospitals under this fund earned only one-third of the total expense, while now they earn two-thirds. This increased earning is due to good organization and operation together with the substitution of a ward rate at or below cost for the wards, when previously all were practically free.

It seems, therefore, that this association should keep in close touch with this committee on "The Cost of Medical Care," since it will deal fairly not only with the doctors and hospitals, but with the public at large.

#### BOOKKEEPING AND ACCOUNTING.

There is no one thing that adds to the successful management of a hospital more than a system of accounting as instituted by certified public accountants. From their reports one may study comparative statements by weeks, months, or years. These reports clearly outline the income by departments so that a budget can easily be prepared. They also show in detail the expenditures of the hospital by departments, thus serving as a thermometer to indicate when operating costs are running too high. The Duke Foundation has prepared a system of accounting for the hospitals with which it will become affiliated. A study of this system as well as other methods of auditing and accounting may indicate to this association the advisability of recommending a uniform system for us all.

#### TRAINING DIETITIANS.

It has become as necessary to have a dietary department for medical cases as diabetes, pernicious anemia, nephritis, etc., and the pre-operative and post-operative treatment of surgical patients as it is to provide pathological laboratories and X-ray departments for diag-



nosis. It is equally as important to have a trained dietitian to direct this department as it is to have a nurse to supervise the care of patients.

Dietitians as a rule are of two kinds, the over-educated and the under-trained. The over-educated speak of vitamins and psychological charts for servants, but know nothing of making good gravy. The under-trained often can boss servants and superintend good home cooking but know nothing of medical diets.

It is safe to say that our dietary departments spend about one-fourth of our annual incomes. In Virginia alone this amounts to hundreds of thousands of dollars a year. The difference of a fraction of a cent on each meal served each person each day may easily determine our profit or our loss in a year. The difference between the salaries of a housekeeper in the kitchen and a trained dietitian may seem great, but when one stops to consider that such a large part of the hospital expense goes down through this department, the importance of efficient management is obvious.

Our larger hospitals may well consider a plan of co-operation with our state schools of domestic science in arranging courses in dietetics, similar to those now given for training laboratory technicians. It is essential that applicants for special training as prospective dietitians have college degrees with home economics as their major subject. A practical three months' course would be somewhat in accordance with the following outline:

#### A. Theoretical Instruction.

##### I. Dietotherapy:

1. Nephritic—6 point, 8 point, 10 point, 12 point, etc.

##### 2. Diabetic—

- a. Books of instruction.
- b. Books of calculation.
- c. Teaching to patients.
- d. Teaching to nurses.
- e. Various diabetic clinics, hotels, restaurants, etc., in different cities.

##### 3. Anemia.

##### 4. Hyperchlorhydria.

##### 5. Hypochlorhydria.

##### 6. Obesity.

##### 7. High Calory.

##### 8. Cardiac.

##### 9. Sippy.

##### 10. Gastric and Duodenal Ulcer—convalescent.

##### 11. Lithæmic. (Purin-free).

##### 12. Anti-constipation.

##### 13. Hypertension.

##### 14. Karell.

##### 15. Children—different ages.

##### 16. High Mineral.

##### 17. High Vitamine.

##### 18. Low Fat.

#### II. Outline the Teaching of:

1. Theory of Dietetics to Nurses.
2. The Practical Dietetics to Nurses.
3. Dietotherapy.

#### B. Administrative.

##### I. Menu Making for Various Groups.

##### II. Buying—

1. Food.
  - a. Quality.
  - b. Quantity.
  - c. From whom.
  - d. When to purchase.

##### 2. Linens.

##### 3. Equipment.

#### III. Hospital Management and Supervision.

##### 1. General Kitchen.

##### 2. Dining-rooms.

##### 3. Tray Service.

##### 4. Diet Kitchens.

##### 5. Storerooms.

##### 6. Service and Servants.

##### 7. Bookkeeping, Records, Census, etc., (daily, weekly, monthly).

#### C. Practical Work.

##### I. Serving of trays with nurses and maids.

##### II. Making of menus and buying.

##### III. Making out of reports to Director daily.

##### IV. Recording all purchases (card system).

##### V. Computing average costs per meal per person.

##### VI. Checking up of all special diets (menus and trays made and served by nurses getting training in Diet Kitchen).

##### VII. Visits to patients requiring special diets or adjustments.

##### VIII. Checking up with physician, if required, progress of patients on special diets.

#### D. Laboratory Work. (Practical laboratory work in sterilization, urinalysis, etc.)

### HOSPITAL SUPPLIES.

Hospital supplies are handled or mishandled in various different ways according to the efficiency or inefficiency of storeroom management. Some institutions have two or more storerooms, with or without proper supervision. Other hospitals seem to operate a system of "help yourself" to all available supplies as long as they are available, and a liberality of economic policy by which any employee may purchase goods. Many other hospitals operate along such hit or miss lines that no record is kept of goods received, exchanged, or returned for credit. No one person is authorized to be responsible for all purchasing, approving bills for payment, making charges for special articles to patients, or for charging departments of the hospital for goods received for general use. Operating in such an unsystematized manner, it is impossible for any institution to function on a budget or to hope to reduce operating costs.

Economy in buying is important and may

save an institution five or ten per cent, but perfect economy is to be executed only in the wisdom with which supplies are issued for use. As a concrete example, we may consider the purchase and use of gauze and cotton. It is true that the market fluctuates and that prices of manufacturers vary somewhat, but if this association, through the help of surgeons, could prepare in writing with illustrations a simple technique for internes to follow in dressing all classes of wounds, which, though eliminating all waste, would take the most effective care of patients' wounds, a tremendous saving might be realized each year. The point here is that the chief saving is not in buying but in the use of supplies. As far as expert information on hospital management goes today, the consensus of opinion seems to be that the most efficient manner of disbursing hospital supplies is that the ideal hospital should have one central storeroom operated under a full time storekeeper. From this department all purchases should be made and incoming goods checked. Here all supplies should be given out for use in the hospital on signed requisitions. Here a permanent inventory should be kept up-to-date. Hospital management is still in the experimental stage, and there are many gaps to be filled in even the best run hospitals. This association, through the combined wisdom of all the best opinions can easily arrange a simplified system which can expedite hospital treatment, avoid the red tape that often costs the patient so dearly by crippling nurses and doctors in cases of emergency, but at the same time stop waste and save money.

#### PHYSIOTHERAPY EQUIPMENT.

Many hospitals are now considering following the Government policy in establishing departments of physiotherapy. This term, as defined by the Surgeon General of the Army, is "All such methods which are conducive to cure, such as . . . hydrotherapy, electrotherapy, and mechanotherapy, active exercise in the form of games and passive exercise in the form of massage". It includes many kinds of electrical appliances, light, heat, and water. There has been so much misinformation on this subject that cautious institutions, while realizing the importance of the department, hesitate to make heavy investments until recommendations are formulated by authoritative bodies. This association can render a great

service in adopting policies concerning this question.

#### OTHER PROBLEMS.

There are many other momentous problems of hospital administration which might be mentioned, such as the training school and nursing, buildings, wages, the hospital pharmacy, the record room, floor equipment, ward inventories, and training for internes, as well as many important problems of a minor character. Enough has been said to indicate the advantages to be gained for this association provided we work unselfishly for our mutual benefit. The study of our problems, the making of recommendations, and the directing of their execution require much effort, time, and money. If we depend upon the activities of our members, there is no doubt that some good will be accomplished through reading papers and discussing subjects. If we intend to avail ourselves of the maximum amount of profit, we must drop the usual lines of procedure among medical societies and organize our forces, to a certain extent at least, along the lines of business.

It would be a great benefit if we could arrange to pay experts in business and hospital work from outside of the state to appear before our meetings and give us one or two days of intensive instruction in subjects pertaining to hospital management.

#### A SALARIED OFFICER DESIRABLE.

The conduct of the affairs of this association will require a great deal of time and clerical work. Our officers cannot afford to do justice to the work for the honor of the positions they hold. For this reason it may be well for us to consider the creation of a salaried official. Since a full time position will not be warranted at this time, it may be best to employ a part time official, one who is well versed in hospital administration and who will become our director or leader.

This association would undoubtedly obtain great reward from a survey of our hospitals similar to that made of all state departments for simplification and economy in state affairs. Such a plan is manifestly impossible at this time. We can, however, through co-operative association, gradually find a solution to many of our manifold problems.

#### RECOMMENDATIONS.

1. That this association provide the facili-



ties for aiding all hospitals in the state in meeting the requirements of the American College of Surgeons.

2. That one or both of our medical schools be requested to establish a course in hospital administration.

3. That provision be made in more of our hospitals for training dietitians.

4. That a committee be appointed to make recommendations for the establishment of physiotherapy departments.

5. That our meetings be made more profitable by adding lectures and demonstrations by paid expert hospital executives.

6. That a committee be appointed to consider the advisability of maintaining a central office under a paid part time executive.

7. That we look forward with confidence to the day when we can set up a standard of business administration equal to that set up by the American College of Surgeons for professional care.

### THE VALUE OF RENAL TESTS IN THE CONSERVATION OF THE RENAL FUNCTION IN NEPHRITIS.\*

By WILLIAM EDWARD FITCH, M. D., Bedford Springs, Pa.

**METABOLISM IN NEPHRITIS:** Degeneration, inflammation, arteriosclerosis and renal insufficiency are the four cardinal points of pathological interest in nephritis. The pathology of this disorder is responsible for an interlacing of various signs, symptoms and morbid processes which heretofore have been "seen as through a glass darkly", and is only now being made understandable. The most important feature of the subject is that renal insufficiency and its consequences form a symptom-complex, the signs and effects of which are now being appreciated with some degree of precision; while the part played by degenerative and inflammatory transmutations is still little understood. The four danger signals in chronic nephritis are (a) uremia, (b) edema, (c) renal insufficiency, and (d) arteriosclerosis (hypertension).

**NORMAL RENAL PHYSIOLOGY:** Physiologists tell us that both in development and structure the kidney is of mesodermal rather than of epithelial origin. The kidney is an excretory organ, concerned chiefly with the selective re-

moval of relatively simple crystalloid waste products from the blood stream, and the maintenance of osmotic pressure and reaction of the blood. The synthetic products of the kidney are hippuric acid and "probably small amounts of urinary ammonia".

**THE INTERNAL SECRETION OF THE KIDNEY:** Bergman and other research workers have reported the presence of a pressor substance "renin" in kidney extracts. This substance was isolated chiefly in the cortical portion of the organ. It is soluble in normal saline solution and in alcohol and was destroyed by boiling. When injected hypodermatically in very small amounts, it causes a rise in blood pressure from 5 to 25 m.m. of mercury.

**THE STRUCTURE AND FUNCTIONS OF THE KIDNEY:** The physiology of the urinary secretion and excretion is an interesting subject and one that has not been determined with precision. It is a compound tubular gland consisting of the glomerulus and tubules of which there are supposed to be 2,000,000 such units in a normal kidney. The formation of the glomerulus peculiarly fits it for functioning as a simple filter. The tubules are constructed of epithelial cells of a type which are "consonant histologically with either secretion or absorption, or both". The vascular supply of the glomerulus exerts a close relationship to glomerular pressure and urinary formation and excretion.

**THEORIES OF RENAL SECRETION:** The most interesting and the most important aspect of renal function is the formation and excretion of the urine. Numerous theories by as many worthy defenders will be presented. Two schools of thought champion the following theories: (1) The vitalists uphold the secretion theory, and (2) The mechanists believe in the mechanical theory.

(1). Bowman, in 1842, advanced the secretion, or filtration theory; basing his deductions on the anatomical structure of the organs. Today the "vital" theory of Bowman has very strong support by many scientific adherents, who believe that water is secreted from the glomeruli, and the uriniferous products from the urinary tubules. Bowman and his followers hold that the secretion of water "aids the separation and solution of the uriniferous products". The Bowman adherents assume that the glomerular epithelium separates from the blood stream the water and salts of the

\*Read by title at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

urine by an act of secretion. The urinary tubules are not primarily organs for *absorption*, but their epithelial cells are actively secretory, separating the organic constituent, urea, from the blood.

(2). Ludwig, in 1844, advanced the mechanical theory, maintaining that the glomeruli act as filters and eliminate from the blood stream not only water, but also the solid constituents of the urine, the inorganic salts and the specific elements of urea. He held that Bowman's capsule was a simple filter which "allowed the passage of all the crystalloids of the plasma along with the water by physical osmotic pressure". It is held that water and some solids are reabsorbed by diffusion in the uriniferous tubules. The anatomical structure of the kidney lends itself to this mechanical theory: the efferent vessels to the glomeruli are smaller than the afferent vessels and on this account the pressure in the capillary tuft is much higher than in the capillaries. The great length of the urinary tubules (25 feet) has, by some investigators, been considered especially adapted for the reabsorption of fluid passing through them, but the physical laws of filtration, diffusion and absorption do not account for such a process. Serum albumin and egg albumin are both indiffusible through animal membranes, still the former pass through the glomeruli without escaping in the urine, and the latter is promptly eliminated. Sugar and urea, both diffusible substances, are present in the blood stream; the former is retained and the latter eliminated. If, however, the sugar content of the blood stream reaches more than 3 parts per 1,000, it is excreted in the urine.

Heidenhain, in 1874, offered a modification of Bowman's theory claiming that not only was water secreted from the glomeruli, but, in addition chlorides, urea and uric acid, and other uriniferous products were controlled by tubal secretion.

Cushney, in 1917, evolved the "modern theory" which includes the "mechanical" filtration theory by the glomerulus and the "vital" theory of resorption by the uriniferous tubules. He holds that "the useful substances as well as waste products are filtered by the glomeruli, but that the former are reabsorbed by the uriniferous tubules". Experimental research in support of both theories is abundant, but it seems that the consensus

of opinion, at the present time a broad-minded survey of the subject, inclines toward the acceptance of Ludwig's theory of mechanical filtration.

Richard's researches have confirmed Cushney's theory of filtration through the glomeruli and reabsorption in the tubules. Therefore we are forced to regard the kidney as an organ of filtration composed of an innumerable number of filtration units, made up of glomeruli and their corresponding tubules of which only a small portion are actually active at a given time, the remainder resting when not mustered into action. When the work is light, numberless units are resting; on the other hand, when the work is heavy, the reserve units are called upon to help "carry the load". The minimum number of these filtration units necessary to "carry on" are in all probability only a small portion of the reserve in the healthy human being. Sufficient strain is rarely if ever present to require the full reserve of "filtration units" into united action. The ability of the kidney to "muster" into action the requisite number of filtration units to "carry the load" is the measure of kidney efficiency.

**THE EFFECTS OF BLOOD PRESSURE ON URINARY SECRETION:** The structure of the kidney is directly dependent upon the rapidity of the blood flow. When the arterial blood-pressure falls below 40 mm. of mercury, following shock, hemorrhage or extreme failure of the heart muscle, the secretion of urine ceases. Increased blood-pressure and local dilatation of the renal vessels increases the rapidity of the blood flow. The administration of caffeine will also increase urinary secretion. The kidney is a very vascular organ and very susceptible to the influence of diuretics. It is claimed that the influence of an efficient diuretic will, within one minute's time, send a volume of blood through the kidney equal to its own weight; which is nineteen times as great as the average supply to any other organs in the whole systematic circulation.

**ACID BASE EQUILIBRIUM vs. KIDNEY FUNCTION:** The control and regulation of the hydrogen ion concentration of the body is one of the most important functions of the kidney. The acid end-products of metabolism draw heavily on the alkali reserve of the body which seriously disturbs the acid base equilibrium. Normally, the kidney function efficiently checks



the alkali destruction by secreting from 60 to 70 c.c. of normal acid daily. It saves the alkali reserve of the body by its effects on the phosphates, and by substituting ammonia as an alkali in the urine instead of more stable bases. The normal pH concentration of the blood plasma is slightly near the alkaline point  $H=4 \times 10^{-8}$  or  $pH=7.4$ . The pH of the urine varies from 4.8 to 7.4. Whenever, as is almost always the case, the urinary pH is below 7.4, the kidneys excrete products the retention of which in the blood would tend to lower its pH below that point.

**TESTS FOR RENAL EFFICIENCY:** From the foregoing it is evident that the term "renal function", in the clinical sense, is not synonymous with kidney efficiency, but includes all those processes in the body that influence the quality and quantity of the urine that is passed. Therefore, in order to be able to conserve the kidney function in the diseased kidney, we must be able to determine the degree of impairment present. This can be done by the scientific application of a series of tests given herewith. The physician caring for nephritic patients must have a clear understanding of the normal renal function, when evaluating and interpreting the laboratory tests outlined below.

The important tests for renal function fall into three groups:

- (a) Tests for renal function "as a whole";
- (b) Tests to determine the anatomical area of impaired efficiency, tubules, glomeruli, or blood vessels;
- (c) Tests to determine the power of the kidney to eliminate urea, sodium chloride, creatinin, uric acid and water.

Tests for renal function have been found very useful in obtaining an idea of renal efficiency. The phenolsulphonephthalein test is the one most widely used, and most to be relied upon; it has been of inestimable value in broadening our knowledge of nephritis, and is of the greatest importance to the physician who has only limited laboratory facilities at his command.

**THE PHTHALEIN TEST:** Phenolsulphonephthalein is a bright red crystalline powder, not very soluble in water and alcohol, but readily soluble in the presence of alkalis. It is non-toxic, non-irritant locally, and is excreted with great rapidity, practically entirely by the kid-

neys. Its presence in the urine is noted within a few minutes after its injection.

**Technic:** One hour before the drug is injected, the patient is given 400 c.c. of water. One c.c. of a specially prepared solution made up of 6 milligrams of phenolsulphonephthalein is injected intramuscularly, usually in the lumbar region. At the end of two hours and ten minutes (ten minutes for absorption and two hours for excretion), the urine is collected. A 10 to 25 per cent solution of sodium hydroxide is added to the urine to make it decidedly alkaline in q. s. to make a liter; then the percentage of phthalein excreted is determined by comparison with the standard in a suitable colorimeter. The normal excretion of phthalein in two hours is 60 per cent of the quantity injected, though in many cases the normal will be 50 per cent.

**Clinical Significance:** The all important question now arises—What does a diminished excretion of phthalein signify? What anatomical division of the kidney is involved, tubules, glomeruli or blood vessels? Which of the excretory products, water, salt, urea, etc., is below normal? "Experimental evidence seems to indicate that the phenolsulphonephthalein is excreted principally by the tubules, but also to a slight extent by the glomeruli".

Many attempts have been made to associate phthalein elimination with one or more of the excretory products. It has been found that "the excretion of sodium chloride, water and urea do not follow phthalein while creatinin does; furthermore, it has been observed that the relative amounts of water and chlorides eliminated depend more upon the blood flow than upon the amount of kidney tissue present, while the importance of the influence of these factors is reversed in the case of creatinin and phthalein".

**Clinical Value:** The value of phthalein has been established beyond question. The normal excretion of phenolsulphonephthalein two hours after intramuscular injection is 60 per cent, though it has been found with diminishing values to zero; 25 per cent or less is to be regarded with serious prognosis. The application of the test requires very little equipment for its employment and no profound knowledge for its interpretation. Theodore Janeway in 1913, in summing up its value and importance, said: "The test aims at the solu-

tion of the old problem, the prognosis, especially as a guide to surgical procedure. It is an admirable and trustworthy test and serves the purpose better than any thing else we possess today. From the medical standpoint the test is a rough qualitative measure of the "whole kidney function".

The consensus of opinion at the present time is that the percentage of phthalein excretion in nearly all types of nephritis depends largely upon the amount of actively functioning kidney surface. However, there are forms of nephritis—the paranchymatous—characterized by albuminuria, diminished salt excretion and edema, where the phthalein output not only exceeds the normal but may be found in greater quantities, even as much as 82 to 90 per cent. On general principles, then, we may be justified in saying that the severity of nephritis cannot always be measured by renal function alone. On the other hand, we are justified in saying that a kidney which fails to eliminate phthalein in the specified time is from the clinical standpoint renally insufficient, and a guarded prognosis should be given.

**SCHLAYER'S TEST FOR RENAL FUNCTION:** He recommends "20 grams of *lactose* dissolved in 20 c.c. of distilled water. A solution of this concentration having been previously pasteurized at 75 to 80 C. for four hours on each of three successive days is injected, under antiseptic precautions, into a vein at the bend of the elbow". The urine is collected at hourly intervals, and tested with Nylander's solution until the reaction for sugar ceases to be positive. A normal individual will eliminate about 90 per cent of the milk sugar in less than four or five hours; if the glomerular function is impaired, the lactose excretion is prolonged and a smaller quantity will be recovered. His *potassium iodide test* is carried out by administering to the patient 0.5 gram of K. I., in solution, by mouth, and the urine is collected and examined every two hours for iodine. The average time in normal individuals for the excretion of iodine is forty-four hours, though Schlayer says "no observation less than sixty hours can be considered as an indication of delayed elimination".

There seems to be no established relation between kidney function and pathological changes based on the rapidity of lactose excretion. Schlayer thinks that *vascular nephritis*, acute and chronic, can be distinguished by

lactose excretion; that the diminished or increased excretion of urine is greatly influenced by the action of vasodilators upon the renal vessels, whether the latter are sensitive or insensitive to the former, and the normal excretion of iodides and chlorides. He further says "*tubular nephritis* is distinguished by the fact that the excretion of chlorides and iodides is delayed while the lactose and water output is practically normal".

After all the clinical facts are carefully considered, we must admit that the most valuable single test for the estimation of "total renal function" is the *phthalein* test, which gives a trustworthy insight of the "total renal function" in all types of nephritis, acute or chronic. It shows the quantity of the drug (dye) eliminated through the kidney in a definite time. It also shows the extent and severity of the kidney lesion to be in direct proportion to the quantity of phthalein found in the urine within a given period of time.

**THE VALUE OF BLOOD CHEMISTRY TESTS TO DETERMINE THE RELATION OF UREA TO THE TOTAL NON-PROTEIN NITROGEN OF THE BLOOD IN NEPHRITIS:** The total non-protein nitrogen is made up of the sum of various substances derived from the digestion and disintegration of the protein in the dietary. The urea, uric acid, creatin, creatinin, amino-acids, go to make up the greater portion, if not the entire amount of non-protein nitrogen (Mosenthal). The urea of the blood is the most popular of the chemical tests used to determine the relation of non-protein nitrogenous constituents in nephritis.

The comparative value of uric acid, urea, and creatinin in the blood of nephritics has been proven to be of inestimable value in judging the clinical progress of renal insufficiency. In summing up a "comparison of these non-protein nitrogenous substances in the blood and urine, it has been found that the kidney can concentrate the creatinin 100 times, the urea 80 times, and the uric acid only about 20 times". Uric acid in the blood is one of the earliest signs of renal insufficiency. Creatinin rises above normal values in the circulation, only in the last stages of nephritis. An increase in uric acid in the urine indicates a slight degree of renal insufficiency, but a rise in the blood creatinin is a danger signal of *marked deficiency* of renal function.



The metabolism of creatin in nephritis has not been given a great deal of attention. The presence of creatin in the circulation is of no great clinical importance, but may be of value in prognosticating the course of protein metabolism in nephritis. A rise in the blood creatin indicates an increased disintegration of protein, more particularly of muscle protein. We incorporate herewith the "Blood Chemistry" report of a case of chronic interstitial nephritis—contracted kidney.

TEST DAY DIETARY FOR RENAL FUNCTION: Tubular degeneration exists with glomerular and arterial sclerosis in an endless variety of combinations, and it is only through a knowledge of the relative derangement of the individual functions that we are able intelligently to direct the management and treatment of nephritis. Much of the recent progress in our study and treatment of nephritis had its stimulus in the methods of the determination of kidney function by the qualitative estima-

THE CREATIN VALUES OF THE BLOOD COMPARED WITH THOSE OF SOME OF THE OTHER NON-PROTEIN NITROGENOUS CONSTITUENTS. THE INCREASE OF BLOOD CREATIN OCCURS ONLY WHERE RENAL INSUFFICIENCY IS ADVANCED.

DIAGNOSIS	Milligrams per 100cc. of Blood			
	Creatinin	Creatin	Urea Nitrogen	Uric Acid
Normal.....	1.7 to 2.3	3.5 to 4.8	4.5 to 15.	1.0 to 2.6
Mrs. B. Chronic Nephritis.....	1.7	12.4*	34.	5.

The creatinin was found to be normal.  
The creatin was found to be in excess of the normal, indicating a diminished ability of the blood to change creatin chemically or to an increased production, suggesting an increased disintegration of protein.  
The urea nitrogen was found to be "higher than normal", indicating that the renal excretory formation has been definitely curtailed.  
The uric acid was found to be fifty per cent above normal, indicating impairment of the renal function, suggesting the advisability of reducing the proteins and purins of the dietary.

The increased concentration of urea in the blood is a compensatory phenomenon "to provide sufficient pressure to cause its excretion through a damaged outlet; under certain conditions accumulation occurs" (McLean). tion of excreted chemicals and dye stuffs, as used in the various tests just described.  
The following *test meal*, proposed by Mosenthal "as suitable for the use of the general practitioner", is a very admirable qualitative

MOSENTHAL NEPHRITIC TEST DAY DIETARY<sup>1</sup>

All food to be salt-free from the kitchen.  
Salt for each meal to be furnished in weighed amounts (below).  
All food or fluids not taken to be weighed or measured and charted.  
Allow no food or fluid, except at meal times.

Breakfast 8.00 A. M.	Dinner 12 Noon	Supper 5 P. M.
Boiled oatmeal.....100 gm.	Meat soup.....180 cc.	Two eggs, any style
Sugar, ½ teaspoonful	Beefsteak.....100 gm.	Bread, two slices.....120 gm.
Milk.....30 cc.	Baked potato.....130 gm.	Butter.....20 gm.
Bread, two slices.....120 gm.	Green vegetables.....q. s.	Tea.....180 cc.)
Butter.....20 gm.	Bread, two slices.....120 gm.	Sugar, 1 teaspoonful.....200 cc.
Coffee.....160 cc.)	Butter.....20 gm.	Milk.....20 cc.)
Sugar, 1 teaspoonful.....200 cc.	Tea.....180 cc.)	Fruit, stewed.....150 gm.
Milk.....40 cc.)	Sugar, 1 teaspoonful.....200 cc.	Water.....300 cc.
Milk.....200 cc.	Milk.....20 cc.)	
Water.....200 cc.	Water.....250 cc.	
	Tapioca pudding.....110 gm.	

8 A. M., next morning (no food or fluid during the night), after voiding, return to regular meals. Patient to empty bladder at 8 A. M., and at the end of each period, as indicated below.  
The specimens are to be collected for the following periods in properly-labeled bottles.  
One capsule of sodium chloride, 2.3 grams, to be furnished at each meal. Any salt not consumed to be saved and returned with the bottles and sent to the laboratory.

<sup>1</sup>Dietotherapy, Vol. 3, by the author.

test of the renal function, as measured by the specific gravity, salt, nitrogen and water excretion in two hourly periods. Determination of the presence or absence of renal impairment is possible by the use of this "test day dietary".

This case of chronic interstitial nephritis, on which the above various tests were made serves to illustrate their value and necessity in determining renal function.

I. The phthalein test showed 40 per cent elimination (normal 50 to 70 per cent) of the

#### THE SPECIMENS OF URINE ARE TO BE COLLECTED FOR THE FOLLOWING PERIODS:

8 A. M. to 10 A. M.	12 Noon to 2 P. M.	4 P. M. to 6 P. M.
10 A. M. to 12 Noon	2 P. M. to 4 P. M.	6 P. M. to 8 P. M.
		8 P. M. to 8 A. M.

This dietary contains approximately 13.4 grams of nitrogen, 8.5 grams of sodium chloride, 1,780 c.c. of fluids and a considerable quantity of purin material in meat, soup, tea and coffee, and it is on the mode of excretory response that the study of renal function depends. This is the most dependable and trustworthy test for determining renal function. "We know the exact *food* and *fluid intake* by the use of this test-day nephritic diet. The water output in the urine is meticulously measured every two hours, and the specific gravity is closely noted in order to watch out for the presence or absence of hyposthenuria". (The blood chemistry previously done gives the percentage of nitrogen and chloride content of the circulation). The chemist's report on the urine will show the nitrogen and chloride content of the urine.

The following (laboratory) report on the case of chronic nephritis previously mentioned clearly illustrates the urine concentration test in this case:

drug within two hours, which is indicative of renal insufficiency.

II. Lactose test showed that the excretion was not completed for twelve hours (the normal being four to five hours). Such delayed lactose excretion indicates disease of the renal vessels, glomerulonephritis: arterial nephrotomy with contraction (contracted kidney).

III. The potassium iodide test showed excretion delayed for sixty hours (normal forty hours), which indicates that elimination through the renal tubules was faulty.

IV. The blood chemistry test showed urea nitrogen to be higher than normal, indicating that the renal excretory formation was definitely curtailed.

V. The urine concentration test showed the maximum nitrogen concentration to be below normal, but not necessarily pathological. This patient had been under careful treatment for three years, with a treatment designed to conserve "kidney function". She had the most careful supervision as to diet, exercise, rest

#### URINE CONCENTRATION TEST.

Patient: Mrs. B. Time	Volume, c.c.	Specific Gravity	Nitrogen % Gm.		Chlorides % Gm.	
10 A. M.....	270	1.012	0.50	1.35	0.41	1.11
12 Noon.....	99	1.007	0.28	0.28	0.26	0.26
2 P. M.....	120	1.006	0.28	0.34	0.17	0.20
4 P. M.....	60	1.021	0.75	0.45	0.81	0.49
6 P. M.....	190	1.014	0.60	1.14	0.60	1.54
8 P. M.....	101	1.018	0.63	0.62	0.94	0.95
8 P. M. to 8 A. M., next day.....	580	1.018	0.62	3.60	1.02	5.90
	1420			7.79		10.45

The Mosenthal urine concentration test for renal function yields the following results on the urine collected during this dietary:

The specific gravity variation 14, which is normal.

The maximum specific gravity 1.021, which is normal.

The nocturnal urine volume 580 cc., which is normal.

Sodium chloride maximum concentration 1.02%, which is normal.

Maximum nitrogen concentration 0.75%, which is below normal, but not necessarily pathological.

The total sodium chloride elimination is 10.45 grams, which is high, and must be explained by a high chloride reserve referable to carbohydrate fermentation. The few casts are the only evidence of renal irritation.



and sleep. She had a strict dietary, and one day each week a protein-free dietary, and on another day, each week a salt-free dietary.

The points of special interest in this case are: (1) markedly fixed low specific gravity; (2) diminished output of salt and nitrogen; (3) the tendency to polyuria; (4) night urine increased in volume, of low specific gravity and low nitrogen percentage; all of which indicate renal insufficiency in a chronic interstitial nephritis (contracted kidney).

This patient has had chronic interstitial nephritis for many years; three years ago the urine was loaded with albumin, and there were many casts. There was considerable puffiness under the eyes and marked edema of both lower extremities. She suffered from morning headaches, her blood pressure was 100-165, and occasionally she was annoyed with ringing in the ears. When she came under my observation, a careful physical examination was made, the tests above described were made, and a diagnosis was arrived at of chronic interstitial nephritis. I realized the necessity of placing her under a strict regimen and directed a treatment which would conserve her already impaired "kidney function".

**TREATMENT TO CONSERVE RENAL FUNCTION:** The plan of treatment to conserve "kidney function" in an already impaired kidney, is kidney rest, as far as possible. This can be accomplished, *first*—by the restriction of all drugs which would irritate the delicate kidney tissue, the more important of which are potassium chlorate salol, carbolic acid, turpentine, salicylates, lead, phosphorus and alcohol; *second*—where there is a solution of the continuity of the skin, the applications of the following drugs should be avoided, viz., turpentine, mercury, iodoform, balsam of Peru, pyrogallie acid and preparations of tar; *third*—prolonged exposure to wet and cold should be carefully avoided, and a residence in a warm dry climate advised, where the patient can spend a part of each day out of doors, since sunshine and fresh air are desirable factors. The advantage of a dry, warm climate is that it influences the dilatation of the peripheral vessels and increases elimination through the skin, which would be the opposite in a wet, cold climate. The daily loss of water through the skin in a dry, warm climate is much greater than we could secure in a colder climate by the use of artificial

sweats. It must be understood that climate does not cure these chronic nephritics, but it adds to their comfort and may prolong their lives by preventing acute exacerbations and lessening the tendency to uremia.

*Rest in bed* is of primary importance; chronic nephritics should stay abed until mid-day. This practice insures continued uniform warmth of the body surface, limits body nitrogenous waste to the minimum, puts less work on the heart as there is almost always more or less myocardial insufficiency, which should always be kept in mind.

*Cathartics:* It is very essential in all cases of chronic nephritis that free bowel elimination be secured. Free catharsis increases the elimination of nitrogen from the system. von Noorden makes the assertion that "normally 10 per cent of the nitrogen ingested leaves the system through the evacuations, but in uremic patients with diarrhoea, the elimination will reach 30 per cent". The choice of a cathartic narrows down to the sulphates, which produce watery stools; chloride cathartics are harmful, where there is evidence of salt retention. The Bedford Magnesia water, according to methods of administration and temperature, produces free catharsis. Osler, in his Practice of Medicine, says "chronic nephritic patients derive much benefit from an annual visit to certain minerals springs, such as Bedford Springs in Pennsylvania, and Saratoga in New York".

*The Restriction of Fluids in Nephritis:* The practice of the past has been to allow large quantities of water to "flush the kidneys", in nephritic cases. It has been shown by von Noorden and others, in recent years, that excessive water consumption is more often harmful, rather than beneficial. The Mosenenthal "test day dietary" will indicate the quantity of fluids the patient can metabolize; the *intake* should never exceed the *outgo*. In every case of chronic nephritis where elimination is impaired, as shown by the percentage of renal edema, water restriction is imperative. Such patients should, as a rule, ingest only about 1,000 c.c. of water daily. If the urine is scanty and edema is pronounced, only one-half this amount should be allowed. Patients free from edema should once a week have a flushing-out-day using as much as 2,000 c.c. of a mild, bland mineral water.

*Sodium Chloride Restriction:* In all forms

of chronic nephritis associated with renal edema, restriction of sodium chloride is of momentous importance, even imperative. Salt retained in the tissues demands water to maintain it in its proper molecular concentration, the result being edema. A safe rule to follow in nephritis is to allow the patient only the amount of salt demanded by the tissues, which is from 2 to 3 grams. A rigid salt-poor dietary will contain about this quantity. It is almost a physical impossibility to have a *salt-free* diet, since the foodstuffs contain sodium chloride in their natural state.

**Balneotherapy:** There is no question of the value of free diaphoresis in chronic nephritis. The relief obtained is due to the dilatation of the peripheral vessels, thereby relieving the heart; and also to the dilatation of the pores of the skin, allowing elimination of poisons and toxins, and thereby relieving the kidney of a part of its load. Profuse sweating also lowers blood pressure and relieves cardiac dyspnea due to hypertension. Various methods are used for inducing free diaphoresis. In our balneotherapeutic department, at Bedford Springs, we use the electric cabinet bath for this purpose: a cold towel is placed around the head of the patient and the sweating continued for fifteen minutes or longer, followed by a "hot pack" in which the patient lies for ten to twelve minutes, gradually cooling off. Then an alcohol rub completes the treatment, with a moderate massage. The quantity of water lost in a profuse sweat such as this will often be as much as one liter. It has been shown that the elimination of solids in this amount of sweat will range from 8 to 9 grams, of which 2.86 grams will be sodium chloride, and 2.08 grams nitrogen.

**Dietotherapy:** The old practice of an exclusive milk diet in chronic nephritis has been abandoned. With the increased knowledge of the functioning power of the kidney, a more liberal dietary is now permissible. Another reason for abandoning a strict milk diet is that the caloric requirements—three quarts of milk—was too severe a tax on the kidney in glomerular nephritis.

#### DIETARY FOR CHRONIC NEPHRITIS.

##### ALLOWED:

**Soups**—Vegetable or fish, broths with rice or barley.

**Fish**—Raw oysters or raw clams, fresh broiled fish.

**Meats**—Eat sparingly chicken, game, fat bacon and ham.

**Farinaceous**—Stale bread, whole wheat bread, graham bread, toast, milk toast, macaroni, rice, cereals.

**Vegetables**—Cauliflower, cabbage, mashed potatoes, lettuce, mushrooms, water cress, spinach, celery, turnip tops.

**Desserts**—Ripe raw fruits, stewed fruits, rice, tapioca, bread and milk puddings, tapioca peach soufflé, junkets.

**Beverages**—Toast water, weak tea, coffee, pure water, Bedford Limestone spring, peptonized milk, Horlick's malted milk, fresh buttermilk, plain sweet milk, whey, clabber, cream cheese, cottage cheese, and unfermented grape juice.

##### FORBIDDEN:

Fried fish, corned beef, hashes of all kinds, stews of all kinds, pork, veal, heavy bread, batter cakes, lamb, mutton, beef, gravies, meat extract, beans, peas, malt and spirituous liquors, and all alcohol, ice cream, pies and pastry, chowchow, chutney and all condiments, onions, asparagus and all salty foods.

#### SALT-POOR DIETARY.

##### Breakfast:

Bread 60 grams, orange juice 200 c.c., butter 40 Gm., cream 30 Gm., farina 50 Gm., sugar 30 Gm., coffee or tea 180 c.c.

##### Luncheon:

Bread 40 Gm., butter 20 Gm., egg one, potatoes or carrots 125 Gm., cream cheese 20 Gm., sugar 30 Gm., rice 50 Gm., cream 30 Gm., tea 180 c.c.

##### Dinner:

Bread 50 Gm., butter 35 Gm., farina 50 Gm., cream 40 Gm., cream cheese 30 Gm., olive oil 30 Gm., lactose 8 Gm., sugar 30 Gm., potatoes or carrots 75 Gm., buttermilk 200 c.c.

At luncheon or dinner allow in addition a moderate amount of tomatoes, lettuce, cauliflower, fresh spinach, beets, squash, oranges, grapefruit, peaches, sweet grapes, pears, apples, melons, jams or honey.

Approximate food values: Protein 35 Grams, (5 or 6 Gm. nitrogen) calories 2700, chlorides about 1 gram—15 grains.

#### LOW PROTEIN DIETARY.

##### Breakfast: 6:00 A. M.:

Coffee or cocoa 120 c.c., orange juice 200 c.c., rice or oatmeal cooked without salt 60 Gm., half grapefruit.

##### Forenoon Luncheon, 10:00 A. M.:

Milk 120 c.c., or cocoa 180 c.c., salt free toast 60 Gm., one orange.

##### Luncheon, 12:00 noon:

Small quantity of any of the following vegetables cooked without salt: Tomatoes, cabbage, cauliflower, beets, spinach, carrots, squash, young beans, lettuce.

##### Afternoon Luncheon, 4:00 P. M.:

Milk 180 c.c., orange juice 200 c.c., water 180 c.c.

##### Dinner, 7:00 P. M.:

Salt-free toast 120 Gm., one egg, tea with milk and sugar 180 c.c., baked apple, or stewed fruit, 75 Gm., peach or tapioca pudding 100 Gm.

When care is taken in determining the type of nephritis by the use of the various tests outlined, and the exact anatomical portion of the impaired organ decided upon, we can conserve the renal function and spare a diseased kidney unnecessary labor, by directing a suit-



able dietary and furnishing the food distinctly appropriate to the needs of each individual case.

*Bedford Springs Hotel and Baths.*

### THE DIAGNOSIS OF ECTOPIC PREGNANCY.\*

By JAMES W. DAVIS, M. D., F. A. C. S., Statesville, N. C.  
Davis Hospital.

The ovum may be fertilized and lodge at any point from its passage from the ovary to the uterus. The most likely point, however, in ectopic pregnancy is in the middle or outer part of the tube.

The location or site of the ectopic pregnancy governs to some extent the character of the symptoms and the rapidity of their onset.

The classical symptoms of ectopic pregnancy are those which accompany a rupture of the tube after the ovum has reached a certain size. This usually produces a terrific shock and intra-abdominal hemorrhage. The patient first experiences a sudden, severe pain in the pelvic region, usually localized either on the right or on the left side and accompanied by severe shock. The patient often faints and may be found lying on the floor with a weak, rapid pulse and signs of shock and internal hemorrhage.

In these cases there is usually the history of having had children—the last, one to three years before. Often the periods are absent for a month and then there is irregular bleeding with lower abdominal pain which may or may not be severe enough to be noticed.

The rupture of a tube already distended almost to the limit by an ectopic pregnancy may be hastened by any unusual exertion or strain, such as moving furniture or reaching down and lifting a heavy child. Many patients give a history of some unusual strain or exertion preceding the onset of symptoms of internal hemorrhage due to a ruptured tube. Often though there may be no history whatever of exertion. The rupture may take place while the patient is lying quietly in bed.

The classical case is usually recognized promptly, but the early and the atypical cases must often be studied very carefully in order to recognize them and even then it is sometimes difficult.

An early diagnosis before the tube has ruptured enables us to reduce the mortality to a

very low point. An early operation before there has been any hemorrhage or shock is attended with very little danger.

Recently, I have seen a number of cases of ectopic pregnancy in which the only symptoms were slight bleeding which persistently followed the last period. In one case it had persisted for over six weeks. The patient complained of slight pain in the right pelvic region which was colic-like in character and intermittent. The pelvic examination did not show very much trouble, but there was tenderness over the right tube on gentle palpation. A number of cases give almost similar histories with similar findings. Operation was advised in all of these cases and done promptly. The ectopic pregnancies in these cases were located about the middle third of the tube or about the junction of the middle and outer third. In none of these cases was the tube ruptured. (In suspected cases palpation should be light on account of the danger of rupturing the tube by heavy pressure.)

Tubo-ovarian and abdominal pregnancies are rather unusual and can be best illustrated by recounting previously the history of a typical case of this kind:

The patient, a comparatively young woman, the mother of two children developed nausea and vomiting. She thought she was pregnant. Two or three weeks later she had a sudden attack of pain and flooding and had what she thought was a miscarriage. Her family doctor was called in but was not exactly satisfied with the condition found and sent her to the hospital at once. A light curettement was done but nothing was found.

She was very tender over the abdomen but a pelvic examination did not reveal any mass in the region of the pelvis. The patient was watched very carefully and a few days later a tumor could be detected in the abdomen in the region of the appendix. In her case, however, the appendix had been removed years ago. Then a slight jaundice developed. The nausea and vomiting persisted.

A diagnosis of probable ectopic pregnancy was made and an operation advised and this was done at once.

On opening the abdomen the ovum was found well developed and lying between the fimbriated extremity of the right fallopian tube below and the omentum above. Each was attached to the ovum just like the hands would

\*Read before the Iredell-Alexander County Medical Society, March 13, 1928.

be in holding a basket ball and it was evidently receiving nourishment, both from the tube and from the omentum. A small amount of blood had escaped in the abdomen and this accounted for the jaundice. The patient was given a thorough examination prior to operation to rule out all other possible causes of the symptoms.

In all cases of ectopic pregnancy a carefully elicited history and a thorough examination will usually enable one to make a diagnosis. There are certain border line cases, however, in which a definite diagnosis cannot be made, but where the evidence is strongly in favor of an extra-uterine pregnancy. An immediate operation should be advised rather than to wait for confirmation by a rupture of the tube and have the patient run the chance of losing her life. Where pregnancy occurs near the junction of the tube and the fundus of the uterus, rupture occurs earlier and the hemorrhage is usually greater. The farther out toward the ampulla the ova lodges, the greater size it can usually attain before rupture occurs and the less the pain.

#### CONCLUSIONS

1. Any persistent pain in the pelvic region accompanied by uterine hemorrhage or hemorrhage without pain whether it be slight or severe should always demand a very careful and thorough examination.
2. The only treatment for ectopic pregnancy is immediate operation.
3. Where a definite diagnosis cannot be made, but where there is strong presumptive evidence of an ectopic pregnancy, the abdomen should be opened at once. More often than not an ectopic pregnancy will be found.

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### EXPERIENCE WITH SPINAL ANESTHESIA IN ONE HUNDRED AND FORTY-THREE CASES.\*

By JAMES MCLEAN ROGERS, M. D., Soonchun, Korea.  
Physician in Charge, Alexander Hospital.

During the last ten months we have used spinal anesthesia a hundred and forty-three times in this hospital (Alexander Hospital,

Soonchun, Chosen). We wish to report this series together with our experiences and impressions on this method of anesthesia in suitable cases.

The ideal anesthetic should be safe, should be easily and pleasantly induced, should last long enough to allow the usual operations to be completed under it without undue haste, should not have any unpleasant after-effects, and should give good relaxation in abdominal operations. We do not know any ideal anesthetic when measured by all these standards, but, after trying out spinal anesthesia, we believe that in most operations below the waistline, as well as in many in the upper abdomen, it is the anesthetic of choice.

At first we used novocaine 0.1 gm. dissolved in about two c.c. of sterile normal saline and introduced it into the spinal canal, using this with satisfaction for about six weeks. Then some ampules of stovaine that we had previously ordered arrived and we used them for awhile. The formula was one used in the Church Missionary Hospital, at Old Cairo, Egypt, for many years with entire satisfaction, and consisted of stovaine 0.1 gm., sodium chloride 0.1 gm., and distilled water 1 c.c.

Although we used these for about three months, we were not altogether pleased with the results. We noticed that when mixed with the spinal fluid in the hypodermic syringe prior to injection it turned a milky white, thus causing us some worry. Then on mixing it with some red blood cells we found that invariably hemolysis occurred within ten minutes, indicating to us that at least to some degree this solution might be irritating to the delicate tissues of the spinal cord. On several occasions, although introduced low down in the lumbar region, we found anesthesia complete up to the nipples, and one day a patient became faint, almost lost consciousness, so we became convinced that we could not control this agent sufficiently for it to be perfectly safe. Stovaine solutions are of a low specific gravity and diffuse rather readily in the spinal fluid. We decided that we had better discontinue stovaine except in special cases and go back to novocaine, which, incidentally, is only about one-third as toxic as stovaine.

We decided to try out a formula suggested by Li, using for the average adult the following:

Novocaine 0.13 gms. (gr. ij).

\*Read at the meeting of the Korean Missionary Medical Association, Seoul, Chosen (Korea), February 8, 1928.



Caffeine Sodio-Benzoylate 0.2 gms. (gr. iij).

This we dissolve in about two c.c. of sterile normal saline just prior to using.

We are still using this formula with entire satisfaction, and prefer it to the novocaine alone. This solution, when mixed with the spinal fluid, remains clear; it does not hemolyze red blood cells, and thus makes us think that it must be far less irritating than the stovaine solution we had been using. Also, Li says it has a higher specific gravity than has spinal fluid, and is therefore subject to the influence of gravity when introduced into the spinal canal. We have seen this clinically demonstrated often. One time especially when we had injected the solution high up in the spine (in the 12th dorsal space), the patient began to gasp and her respirations became slow and labored, these symptoms disappearing almost immediately when we raised her head and shoulders a little. We have introduced it several times at this level, both before and since, without any cause for anxiety, and just mention this because it happened once and to show how easily this solution seems to be controlled. The caffeine acts as a stimulant, and the patient is spared a sensation of sinking, with the mild shock symptoms, that sometimes accompanied the introduction of novocaine alone. We think this combination is a good one for the purpose.

Now, to go into the details of using this combination in inducing spinal anesthesia, doubtless the ideal way would be to have sterile ampules ready for use, but, to save expense, we weigh out the novocaine and the caffeine-sodio-benzoylate and make up the solution separately for each operation. We have two large spoons boiled with the instruments, and, when ready to operate, we place a little sterile normal saline solution into one of these sterile spoons, boil this, add the powder which readily dissolves in the hot water, and again boil for a few moments, after which we take it up in a hypodermic syringe that fits the lumbar puncture needle. Then, using the other spoon, we boil two or three c.c. of 1 per cent novocaine solution which is to be used in anesthetizing the skin and tissues down to the spinal canal before introducing the needle into the spinal canal. We prefer for the patient to sit on the table with his back towards the operator, but as a matter of fact it is just about as easy to place your needle in the canal with the patient

lying on the side. We select a spinal interspace at a somewhat higher level than that on which we wish to operate if it is an abdominal operation, or if for an operation on the perineum or lower extremities, the usual fourth lumbar space, or any other that may be convenient, will be satisfactory. Have your spinal needle of as small a calibre as possible; this we think is most important, in order to avoid any unnecessary leakage of the spinal fluid into the tissues. By preventing loss of spinal fluid, you prevent many a post-operative headache. After making the puncture, we slip the obturator back into the needle while turning to the table to pick up the hypodermic of solution, and take every possible precaution to avoid loss of spinal fluid, for this pays. Inject the anesthetic solution, withdraw the needle, quickly pinch up the skin, or rub it a bit, then either seal with collodion or place a bit of sterile gauze over the puncture wound, and lay the patient on the back with the head, also the shoulders, if convenient, elevated. Usually in a few minutes the patient will tell you that his feet are tingling or feel dead, and generally by the time the operator has washed up and has prepared the operative field the anesthesia is complete and will last from an hour to an hour and a half. In the rare instances when the anesthesia will begin to wear off before the operation is completed, either another puncture can be done, if convenient, or, as we do, a small amount of ether or chloroform can be given. We have had to supplement spinal anesthesia with a general anesthetic only five times in this series, and for only a very short time in each case—from five to fifteen minutes of shallow anesthesia, never long enough to cause any of the usual after effects of a general anesthetic.

We think it is wise to take the blood pressure at intervals, and if it drops sharply—below a point determined upon before beginning the operation, say down to 80 or 90 mm. systolic, depending upon the general condition of the patient of course—we order a half c.c. of adrenalin extract solution given intramuscularly. We gave adrenalin fifteen times in this series, and never more than one time\* in an operation. Each time after giving it the pressure rose sharply and maintained a satis-

\*Once since writing this, in an intestinal resection we gave adrenalin twice with full satisfaction as to its effects. It was given the second time when the pressure again began to fall, at a time when we had to handle the intestines rather roughly.

factorily high lever throughout the remainder of the operation.

Incidentally, any fall in pressure that is going to occur will probably be noted within fifteen minutes after introducing the solution into the canal. We have seen one exception to this, in an abdominal operation during which we had to handle the intestines more roughly than we like to; in this case the blood pressure fell markedly, but not sufficiently to cause us to give adrenalin. We have never yet had to give adrenalin because of the poor condition of the patient, but each time gave it because the blood pressure had fallen and with a view to preventing any untoward symptoms developing. Ephedrine is recommended<sup>3</sup> for this also, but with this we have had no experience.

All authorities seem to agree the solution is fully absorbed in a few minutes, so that by the time anesthesia is complete in an abdominal operation the patient can be safely placed in the Trendelenburg or any other desired position. We have operated often with the head lowered without observing any ill effects.

It might be interesting to give here a summary of our operations under spinal anesthesia, in this series:

Gastro-enterostomy .....	6
Cholecystotomy .....	1
Inguinal hernia (one badly strangulated)..	3
Ovarian cysts (usually very large).....	2
Hysterectomy .....	3
Appendiceal abscess .....	4
Appendectomy (simple) .....	1
Suspension of the uterus .....	3
Psoas abscess .....	1
Intestinal obstruction (intussusception)....	1
Tumor, bladder wall, enucleation .....	1
Bladder stone, supra-pubic incision.....	1
Laparotomy for mesenteric tuberculosis.....	9
Perineorrhaphy, etc. ....	2
Operative deliveries (forceps, etc.) .....	20
Vesico-vaginal fistula .....	7
Repair, atresia vaginae (due to cauteriza- tion of the vagina by native methods)....	6
Dilatation cervix uteri .....	6
Hemorrhoidectomy .....	7
Anal fistula .....	9
Amputation of strangulated, prelapsd rectum .....	2
Circumcision .....	2
Urethrotomy (external) .....	1
Hydrocele (bottle operation) .....	1
Inguinal adenitis .....	3

Amputation, thigh .....	7
Amputation, below knee joint .....	2
Osteomyelitis of tibia .....	6
Osteomyelitis of femur .....	3
Excision of small bones of foot ....	3
Deep abscesses in thigh .....	11
Fracture femur .....	1
Curetting leg ulcers .....	2
Excision, exostosis os calcis .....	2
Abscess, knee joint, drained .....	1
Abscess, hip joint, drained .....	2
Carbuncle, buttock .....	1

In doing these operations we have used novocaine alone thirty-six times, stovaine fifty-nine times, and the novocaine-caffeine-sodio-benzoate combination forty-eight times.

Now to consider some of the objections to spinal anesthesia. Probably the drop in blood pressure is the most serious. In this series we have the blood pressure readings taken at frequent intervals throughout the operation, recorded in eighty-six operations. There was no appreciable change, at least not exceeding 10 mm. recorded in fifty-seven cases. A definite rise of 20 mm. or more is recorded in three cases. Eleven cases showed a drop of 20 mm.; six cases had a drop in pressure of 30 mm.; three cases dropped 40 mm.; two cases showed a drop of 50 mm.; two showed a fall of 60 mm.; one fell 70 mm., and one 90 mm. (all these in the systolic reading). Most of the cases that showed a large fall in blood pressure were in cases which at the beginning of the operation showed a relatively high pressure, and the fact that we only gave adrenalin fifteen times among the twenty-six cases showing a heavy fall in pressure shows that this relatively high pressure had been previously noted and allowed for in determining to what point we would allow the pressure to fall before resorting to adrenalin.

In spinal anesthesia, as in the use of any general anesthetic, a low blood pressure (under 100 mm.) is considered a poor operative risk. Yet we did a gastro-enterostomy in a patient who before the operation had a systolic blood pressure of only 95 mm., which dropped to 55 mm. a few minutes after introducing the solution, but, when adrenalin was given, it rose to 120 mm. and remained there for the rest of the operation. The patient left the table in excellent condition and made an uneventful recovery. In another gastro-enterostomy case, the systolic pressure was 100 mm. before start-



ing with the diastolic reading 90 mm., and, although we obtained perfectly satisfactory anesthesia and relaxation, his systolic reading only fell 5 mm. Up to the present time we have had no anxiety as to any of our patients. Even the one who showed the truly great fall in blood pressure of 90 mm. showed no clinical evidence of impending trouble, and he received adrenalin not because of his clinical condition but because his pressure had dropped so much we did not want to take chances. We do feel, however, that unless the blood pressure is kept track of, some danger might develop, consequently, we urgently recommend keeping a record of the blood pressure readings, made at intervals throughout the operation. Recording the readings insures that they are taken, and thus adrenalin or ephedrine can be given whenever indicated.

Another possible objection to spinal anesthesia is respiratory embarrassment. We have observed this once only, as already mentioned, and this was remedied immediately by raising the head and shoulders of the patient. By some oversight, the pillow under the patient's head had been left out in this case, but the respiration and condition of the patient so quickly came back to normal that we had no time in which to get anxious.

Occasionally during an abdominal operation when rough handling of the stomach or intestines is necessary, a mild, transient nausea with some retching or vomiting has developed. Each time this has passed off as soon as the tugging was stopped. To date we have not had any post-operative vomiting except in the case operated on for intestinal obstruction, where, of course, it might be expected.

We have observed headache, sufficiently severe for the patient to complain of it and to ask for relief, ten times in this series. Each time aspirin (one to three doses) brought relief, except in one instance when it persisted for two days. In this case the patient was very anemic and had suffered intensely with headache for days before admission to the hospital, and the headache passed away gradually as his condition improved following the operation.

There was some increase in the number of patients who had to be catheterized post-operatively when we used stovaine; this we have not observed when using novocaine. A large number of the operations in this series were

operations on the perineum or lower abdomen involving the pelvic organs. With this type of operation there is naturally an increase in the number of patients who have to be catheterized. We try to have the patient urinate immediately before the operation, and then can wait twenty-four hours, if necessary, before ordering the catheter used.

Sometimes the fact that the patient is conscious might be considered an objection, especially if he is nervous. We usually order morphine about thirty minutes in advance on all serious abdominal cases. Ordinarily it does not seem to be needed in operations outside of the abdomen. The morphine, together with the fact that the area anesthetized is totally insensible, helps the operator to get away with any necessary work, even with a very nervous patient. Try to keep the patient's confidence; he can be definitely assured that there will not be the least pain and that he will feel far better afterwards because of using spinal rather than general anesthesia. We have not had any trouble whatever because the patient was conscious; on the other hand, this is a distinct held at times.

Now to consider the advantages of using spinal anesthesia, which we think, in suitable cases, out-weigh the disadvantages.

In the first place, there is not the post-operative nausea, malaise, etc., which is almost the rule following a general anesthetic. In this series, as already stated, there was no post-operative vomiting. Unless the condition for which the operation was done forbids it, fluid, and if desired, suitable food, can be immediately administered. This we do often, with good results.

There seems also to be much less surgical shock. Theoretically this should be expected, since all the nerve paths to the brain are blocked. The absence of shock, and the general sense of well-being of the patient is most comforting after a long serious operation. The relaxation of the abdominal wall is well nigh perfect, saving time for the patient and the operator, and helping to make the operation successful.

It is a good anesthetic in cases ordinarily designated as "bad risks"—cardio-renal cases, pulmonary tuberculosis, and such like, for it has no influence on the kidneys, lungs, or other organs.

We have several patients on whom we op-

erated, once using a general anesthetic, and then, at a later time, again operated, using spinal anesthesia. These are all unanimous in expressing their preference for the spinal.

It is a convenient method; the operator injects the anesthetic, then moves on to the operation. It is a cheap anesthetic, as we do it, costing only a few cents each time, saves personnel. You do not have to have your anesthetist present; also, the patient is returned to the room fully conscious, and so does not have to have a nurse with him for a time.

It is a safe method of anesthesia, especially for operations below the umbilicus. We have had far less uneasiness with spinal anesthesia than with a like number of general anesthetics, and, unhesitatingly, we are ready to say that in this hospital spinal anesthesia is safer than a general anesthetic, especially when administered by unskilled anesthetists, by whom we often have to have it given. This, of course, is purely a local factor, but how many of us have always skillful anesthetists at our command?

To sum up our opinion after using spinal anesthesia in this series of operations, we believe it is the anesthetic of choice in practically all cases for operations below the waist-line, in adults and older children, and is often to be preferred in operations on the upper abdomen. In this, however, as in any other method, experience counts, and the longer you use it, the better results you will have and the better satisfied you will be with it.

In closing, I want again to mention some precautions. Use a small needle to make the puncture, and avoid all possible loss of the spinal fluid; then, after injecting the novocaine, keep the patient's head and shoulders elevated for a few minutes. Of course, all possible care must be taken in the technique to keep everything perfectly sterile. We believe that, as we have used it, we have in spinal anesthesia a very valuable method of inducing anesthesia at our disposal.

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(Furlough address until May 1, 1929, Amelia, Va.)

## GONGYLONEMA, WITH REPORT OF A CASE.

By HERBERT W. LEWIS, M. D., Dumbarton, Va.

Gongylonema is a filarial nematode, varying in size from 7 mm. to 140 mm. in length, and from .1 mm. to .5 mm. in diameter, that infects the mucous membrane of the alimentary tract of cattle, sheep, hogs, rats, chickens and man.

Species. *Gongylonema Scutatum* in cattle is very widely distributed, having been found in North and South America, Europe, Asia, Africa, and Australia. *Gongylonema Pulchrum* in hogs has been found in North America, Europe and Africa. *Gongylonema Neoplasticum* is found in rats and other rodents. This parasite sets up proliferation of the epithelial elements, and inflammation terminating in distinct carcinoma with metastases. *Gongylonema Ingluvicola* is found in chickens in the Philippines and Florida. *Gongylonema Hominis* in man has been found in Italy and the United States of America (Arkansas, Florida, Georgia and Virginia).

Some authorities state that the different species are so similar that it seems very probable that there is only one species, varying in size and characteristics in different hosts. If, as has been suggested, all these species are identical, the fact has a very important bearing on human pathology.

Fibiger's research and experiments have proven that the parasite plays a definite part in the production of cancer in rats. Sanbon believes it a cause of cancer in man. One other authority states that cancer can be lessened by prevention of gongylonema.

Intermediate hosts are dung-beetles, cellar-beetles, cock-roaches, and meal-beetles. These insects swallow the eggs, which develop to the larval stage in the insect and are taken into the mouth of the final hosts whence they are taken up by the lymphatics.

HABITAT.—These parasites are found in the mucous membrane of the esophagus in animals, in the mucous membrane of the mouth, esophagus and cardiac end of stomach in rats, and in the mucous membrane of the mouth in man. They are found in sinuous galleries in animals and rats; but in man they migrate into the connective tissue of the mouth, a characteristic peculiar in man.

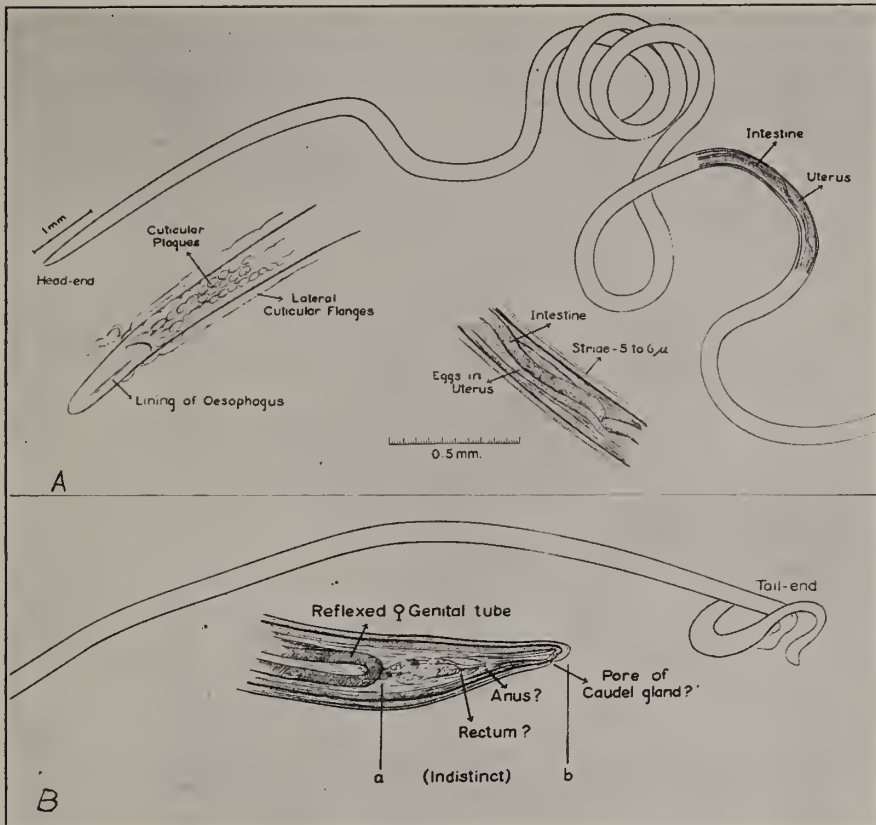
\*Read before the Richmond Academy of Medicine, January 22, 1929.



**OCCURRENCE IN MAN.**—Dr. Leidy, of Philadelphia, in 1850, described a human parasite as *Filaria Hominis Oris*, which he found in the mouth of a child. It possibly was gongylonema.

of Florida, in a girl thirteen years old, the worm being extracted from the lower lip.

Stiles (1919) reports the third case. It occurred in the practice of Dr. Akridge, of Georgia, in a fifty-year-old woman, the



*Gongylonema hominis*.  
A shows head end of worm.  
B shows tail end of worm.

Professor Pane, of Rome, in 1864, found a gongylonema in the upper lip of a medical student.

Professor Alessandrini, of Naples, in 1914, found 6 gongylonemata in the mouth of an eighteen-year-old girl; these worms were extracted at different times, covering a period of six months.

Up to the case I am about to report, there have been three cases reported in the United States. Hall (1916) reported the first case. It occurred in the practice of Dr. R. E. Covington, of Arkansas, and was that of a girl sixteen years old, the worm being extracted from the lower lip.

Stiles (1917) reports the second case. It occurred in the practice of Dr. K. C. Clarke,

worm being extracted from the lower lip as in the previous cases.

**SYMPTOMS.**—A wiggling feeling in the mouth, nervousness, and irritability. The patient may have digestive disturbances and anemia. Upon removal of the worm, symptoms cease.

#### CASE REPORT.

On August 1, 1928, a single girl, aged 18 years, well developed, weight 160 pounds, height 5 feet 7 inches, and of a very cheerful disposition, came to my office and gave the history of having trouble with her mouth for about one month. She said she was not sick, but had a worm wriggling in the flesh of her lower lip and under her tongue.

On examination, I found hyperemic swollen patches on the mucous membrane on the lower

lip. She insisted that she could feel and sometimes see the worm move in different places in the lower lip, but I could see no worm. I gave her an alkaline mouth-wash and told her to return to me if she was not cured.

I heard nothing more from her until September 4, when she produced the worm, which was about an inch and a half long, and the size of a double naught ligature in diameter. It had been removed by her brother (a Methodist missionary) with a sterile needle. He made an incision parallel with the worm and removed it in toto from the mucous membrane of the lower lip one-half inch to the left of the mid-line. The patient was relieved of the peculiar sensation in the mouth and has remained well. The worm migrated about in the lower lip as far back as the fauces and in the floor of the mouth under the tongue.

This girl was born and raised in Virginia, and has never been out of the State. She has lived on the farm that she is now living on for the past five years. They have milk-cows on the farm, and some cock-roaches in the house.

I am greatly indebted to Dr. G. F. McGinnes, Department of Health, Richmond, Va., for his untiring efforts to identify this worm, and also to Professor C. W. Stiles, Hygienic Laboratory, U. S. P. H. S., Washington, D. C., for his identification and diagnosis of the worm.

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### A STUDY OF URETERS IN FIFTY-ONE NECROPSIES.\*

By SAMUEL H. NIXON, M. D., Christiansburg, Va.

The work of Hunner in establishing ureteral strictures as a distinct clinical entity has given a tremendous impetus to the interest and study of the ureter and its diseases. The divergent opinions expressed by different observers have stimulated discussion and original work on the subject. The ureter is being investigated from

many viewpoints and new avenues of thought are being developed.

As part of the routine in performing necropsies, I began examination of the ureters for strictures, and later it seemed appropriate to include the study of the normal ureter, since preliminary to the scientific study of disease is an accurate knowledge of the physiological variations of structure and function of the organ. In this relation the physiological constrictions have a dual interest: Firstly, a predisposing cause of stricture through its obstruction to the passage of renal calculi, with its impaction, infection and resultant stricture formation; secondly, a precise knowledge of the variations in size, density and location of constrictions is necessary for an accurate differentiation from the true stricture. A confusion of the two conditions could explain in part the great discrepancy of authors on the subject of ureteral strictures. Schreiber reports a 12 per cent post-mortem incidence of ureteral strictures from one hundred unpicked consecutive autopsies. Some writers estimate the incidence as less than 1 per cent.

Peacock found from a study of sixty cases of impacted calculi of the ureter that 76 per cent of the stones were in the lower third, 19 per cent in the upper third and 5 per cent in the middle third. Of course, renal stones may become impacted in any part of the ureter, but the position of arrest varies directly with the size and density of the physiological constrictions. I hope to show below that the smallest constriction is at the uretero-vesical area, and the increased density is due to the ureter passing through the bladder wall. The next constriction in point of size and constancy of position is at the uretero-pelvic juncture. The constriction in the middle third of the ureter is the most variable in size and position.

Hunner and Peacock have shown that there is a definite association of ureteral strictures with impacted renal calculi. The latter states that, in 18 per cent of the cases of ureterolithotomy, marked organized strictures were found.

There is little uniformity of description of the ureter in the standard text-books on anatomy. While making the autopsy examinations discussed below, subjects with no discernible lesions of the urinary tract were selected for comparative anatomic study.

\*Read before the Southwestern Virginia Medical Society, at Wytheville, September 28, 1928.



Gray's Anatomy describes the ureter proper as a cylindrical membranous tube, about sixteen inches in length and the diameter of a goose-quill, extending from the pelvis of the kidney to the bladder. Its course is obliquely downward and inward through the lumbar region, into the cavity of the pelvis, where it passes downward, forward and inward across that cavity to the base of the bladder, into which it then opens by a constricted orifice, having passed obliquely for nearly an inch between the muscular and mucous coats. The lower part of the abdominal portion exhibits a spindle-shaped dilatation.

Cunningham's Anatomy states that the ureter in situ has a total length of about ten inches. Its superior part lies in the abdominal cavity, and its inferior part lies in the pelvic cavity. The abdominal portion is about five or five and one-half inches in length, the pelvic portion is about four or four and one-half inches in length. The constrictions occur, (1) in the middle of the abdominal portion, (2) at the junction of the abdominal and pelvic portions, and (3) in the pelvic portion. Also, just before the ureter joins the pelvis of the kidney and where it reaches the bladder wall, its lumen is usually somewhat constricted.

These necropsies were made in the Section of Pathological Anatomy of the Mayo Clinic, and consist of fifty-one unselected cases. There were forty-seven adults—thirty-three males and fourteen females—the ages varying from twenty-six to eighty-two years; four children—three males and one female—ages five and one-half months, pre-natal, to eleven years.

The kidneys, ureters and bladder were inspected in situ for the relationship of inflammatory masses and growths, then removed en masse, including the prostate in males. The prostate was examined for hypertrophy; the bladder for dilatation, thickening of walls, inflammation, diverticula and growths; the ureters for strictures, dilatations, kinking and local induration of the walls; and renal pelvis for dilatation. The ureters were then opened from the vesical orifice to the pelvis with probe-pointed scissors and the kidney divided longitudinally. The ureters were again inspected for inflammation, local induration, strictures and physiological constrictions. The open ureters were laid on smooth boards with the mucosal surface upward, and the lengths were taken. Next the point at the pelvic brim

was located as being 2 cm. above the mid-point of the ureter. With gentle pressure on the mucosal surface a scale was passed the entire length of the ureter, noting the points of constriction and areas of widening, care being taken to exert the same degree of pressure with the scale to insure uniform results. The reason is that the width of the ureters varies considerably according to the pressure made on the scale while taking the measurements. After the points of constriction were established, the width and distance from the kidney, brim of the pelvis and bladder were measured in centimeters. The widest areas were also measured, and notes and diagrams were made at the autopsy table.

An analysis of the findings will be given briefly. Six cases had a clinical diagnosis of disease of the urinary tract; thirteen cases showed gross lesions of the urinary tract at necropsy. In one case the right ureter was incorporated in a metastatic carcinoma, with apparently complete occlusion of the lumen, with dilatation of the proximal ureter and the kidney pelvis. There was partial reduplication of the right ureter in another case with marked dilatation of the double portion. No true inflammatory strictures were noted in the series.

Thirty-four adult subjects without gross lesions of the urinary tract were selected for comparative anatomic study.

The length of the left ureter varied from 26 to 38 cm., the average length being 32.1 cm. The length of the right ureter varied from 25 to 35 cm., the average length being 31.1 cm. Thus the left was an average of 1 cm. longer than the right.

The uretero-vesical constrictions showed little variation in size, the circumference varying from 0.3 to 0.5 cm., the average being 0.35 cm.

The uretero-pelvic constrictions varied in circumference from 0.4 to 1 cm., the average being 0.5 cm. The distance of the constrictions from the kidney varied from 3 to 11 cm., the average distance being 6.5 cm.

The constrictions at or near the pelvic brim varied from 0.4 to 0.9 cm., the average being 0.6 cm. Thirty-five per cent of the constrictions of the middle third were at the pelvic brim, and 65 per cent were anywhere from 4 cm. above the pelvic brim to 11 cm. below.

A small percentage of the ureters had a fourth physiological constriction located in the pelvic portion.

The largest circumference varied from 0.7 to 2.5 cm., the average circumference of the largest part being 1.1 cm. The thickness of the walls was about 1 mm.

The left ureter in the four necropsies on children was slightly longer than the right. The constrictions at the uretero-vesical and uretero-pelvic junctures were very constant, but the constriction at the brim of the pelvis was even less definite than in adults.

### CONCLUSIONS

The foregoing series of necropsies is inadequate to justify definite conclusions, and it is only through increased volume of this work that the incidence of ureteral strictures will be solved and the normal variations of the ureter evaluated. Probably it is permissible to state a few impressions formed in the course of this study:

(1). The study of the ureters in this series of fifty-one unselected necropsies does not tend to substantiate the high percentage of strictures reported from consecutive autopsies.

(2). A more minute knowledge of the normal variations of the ureter, and more accurate criteria for post-mortem diagnosis of strictures will promote the solution of incidence of ureteral strictures.

(3). The dimensions of the ureter are quite variable. The occurrence of uretero-vesical and uretero-pelvic constrictions is constant and definite. Constrictions of the middle third are very variable in size and position. Other physiological constrictions do not occur with any degree of regularity.

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*Phlegar Building.*

## SOME THERAPEUTIC ACTIONS OF LIGHT.\*

By C. P. OBENSCHAIN, M. D., Staunton, Va.

There is no effort in this paper to explain the scientific reasons for the behavior of light in its chemical and therapeutic actions. The facts here mentioned are taken from my own observation, and from treatises on artificial light in its relation to medicine.

It is characteristic of humanity to hunt for the elusive things of nature and neglect the obvious. The writer can think of nothing more in evidence than light, its power, and its effect on everything pertaining to our existence. We find our scientists developing cervical kyphosis from bending over the microscope, and gray-headed in their earnest search after medical knowledge. All honor is due them for the effort. But this knowledge is dispensed to us in books, page after page of which is used describing some ridiculous drug which we might need once or twice in a life time, while light, and other component parts of our surrounding medium, is neglected. It takes time, often centuries, for our empirical knowledge to be reduced to a scientific understanding. The effects of light on organic matter are not understood. However, this does not prevent our making use of these same effects where plainly indicated in our work.

We will review some of the actions of light on growing nature. No tree, plant, or living creature can live long without it and, conversely, nothing could live long if administered a continued glare of sunlight. Thus we find nature giving us our light in intervals of various lengths, and we human beings frantically trying to escape these beneficial doses by wearing clothes, building houses, remaining in the shade, riding in covered vehicles, and using every means possible to thwart nature in its attempt to help us.

Our tastes are perverted until we do not admire the muscular, sun-tanned, healthy, freckled young girl of outdoors, but we are asked to go in raptures over the shoe-string, weak, anemic substitute for a female, who compromises a little by trying to imitate the genuine effects of light by paints and other cosmetics.

In the matter of clothes, women have the advantage of more light reaching their bodies.

\*Read before the Medical Association of the Valley of Virginia, at Harrisonburg, Va., May 31, 1928.



The average weight of a man's clothes is eight times as much as the clothes prescribed by fashion for women. It has been found by experiment that sensitized strips of paper pasted on the bodies of men show that scarcely any rays of light penetrate through the clothes, whereas the paper strips under the clothing of women are markedly affected by the light. The amount of light getting to our bodies depends very much on the kind of material from which the garments are made. Here, again, the woman has the advantage. Thus, except for the face and hands, practically no light ever reaches the bodies of men. This advantage is held by women from their youth up, as the legs of little girls are left almost bare, while little boys are often dressed in sailor garb with long pants or with knee pants and stockings joining.

When the writer first started to practice medicine in the country, it was often a wonder why the mountain families, in defiance of all the laws of hygiene, were sturdier, larger in stature, and had less sickness than the more fortunate (?) natives who had all the so-called comforts. At the time it was thought the pure air and simple food had the most to do with this discrepancy; but now, as I look back, the conclusion is reached that life in the open sunshine of the children, from babyhood up, with no social duties requiring the orthodox covering of their bodies, was the greatest factor.

In the animal kingdom, both domestic and wild, each individual takes his daily sun-bath, and spends much of his time where the beneficial rays of the sun can reach. Hence, we find his resistance to many diseases and injuries far superior to man, the most intelligent member of the kingdom. An example of the intelligence or instinct, we find many animals going into winter-quarters when the sun's rays become weak and remain until there is a change. The ground-hog, for instance, comes out on the second day of February and, if he chances to get in the attenuated rays of the sun at this season, weak in the ultra-violet rays, he becomes disgusted and goes back to his hibernating quarters and pouts for six weeks longer.

The sun is unquestionably the best of all sources of light in places where sunlight can be used. Very few beneficial rays of sunlight ever get inside of our dwellings. Ordinary

window glass filters out practically all of the chemical rays. Hence, the old style glass covered solarium for treating patients is a joke. In our own and other countries it has been found that the sunshine in high altitudes is the most active in the therapeutic rays. Colorado, New Mexico, Arizona and the other Rocky Mountain states are noted for their beneficial climate on the tubercular infected patient. The rarefied, dry, dustless atmosphere no doubt has a great deal to do with this good result, but, in the writer's opinion, the tubercular patient gets his most help from the sun's rays, which shine nearly every day in the year through a thinned, dry, dustless atmosphere, laden with much of the violet and ultra-violet rays. We are taught that golf, tennis, tent-life and any exercise in the open is good for the health because of the fresh air, skin activity, etc., all of which cannot be denied. But unconsciously, and generally unwillingly, the golf-player is getting his rays from the sun which he finds it impossible to get in his business quarters—perhaps several stories under masonry and wood. This light is the greatest factor conducive to his well-being.

Now we will turn to artificial sources of light. Here, again, we must imitate nature as much as we can, and get a light that will come as near sunlight as possible. We have, at present, two lights or instruments for making light available—the mercury-vapor light and the carbon light. Either of these can be used to advantage depending on the results desired. It is possible with these to know exactly what the patient is getting, and give our dose accordingly. Hence, we can give our patient in the low-lying district as much ultra-violet and violet light in a few minutes as he will get for the whole of the winter months from the sun, thus, raising his resistance to disease and his ability to do more and better work. We cannot in this short paper describe all the uses to which this artificial light can be put.

This treatment by light is not devoid of danger. When certain drugs are being used, care and understanding must be exercised and the idiosyncrasies of patients must be recognized. The writer has seen several tubercular children, tubercular by all the tests available, cured by using the mercury-vapor light, and up to the present, they have remained cured. Perhaps in rickets these artificial lights give

the most brilliant results. The little weakened, soft-boned, undeveloped child will take increasing doses of this light, and in nearly every case be benefited. They seem to assimilate food better, their bones harden and the hemoglobin percentage rises rapidly.

The writer can think of but few diseases that will not be benefited by this mode of treatment. Due to the thickness of the walls of the adult, the short ultra-violet rays are not as effective as in children and we must resort to the blue and violet, and the long wave ultra-violet rays when treating a tubercular chest.

However, this paper does not admit of any description of the technique of administering the artificial lights. The therapeutic effect in cases where indicated is always beneficial, not from anything added to the body by the light, but from its sterilizing properties and its stimulating of all of the fluids and tissues. It is not necessary to know the exact mode of this action when there is abundant proof that the results can be depended upon. In my opinion, we have in light, while not a panacea, a remedy second to none.

*Selma Boulevard.*

## APPARATUS FOR THE RUBIN METHOD OF INSUFFLATION OF FALLOPIAN TUBES IN STERILITY.

### Apparatus Arranged And Cabinet Designed

By JOSEPH BEAR, M. D., Richmond, Va.

Associate in Obstetrics, Medical College of Virginia; Lecturer on Obstetrics, Retreat Hospital Training School.

The apparatus herein described is the one fashioned and recommended by Dr. I. C. Rubin, of New York. The writer has added a few minor details in the arrangement and has designed a cabinet suitable to be kept in the office and offers a maximum protection to the delicate glass work, etc. The mechanical principles involved and the suggested technique by Rubin are closely followed.

Some of the salient features in using this apparatus are as follows: a uniform pressure-rate flow of gas—this is regulated by the reduction valve attached to tank. It is so graduated as to give forth a constant and even flow of gas. This valve is regulated to ten pounds of pressure. It is important to try out the rate of flow before the actual test is made; e. g., fifteen seconds is required to raise the

mercury column to 100 Mm. of Hg. for when this occurs there is a certain degree of uniformity for the passage of gas into the tubes. If this is not done one is apt to cause a sudden, forceful, irregular and uncertain insufflation of gas and may produce traumatic and harmful results. The writer uses an automobile watch herein described for timing purposes. Slow and careful introduction of the gas is the keynote of its performance.

The above apparatus is more efficient than the bulb or syringe devices recently modified, for, no hand-pressure can be as even and steady as a finely adjusted mechanical valve. Furthermore, the introduction of air instead of carbon dioxide gas increases the chances for air embolism.

The only use for the Rubin test is in the case of sterility. It is a diagnostic procedure proving the tubes to be either patent or occluded. In a certain percentage of cases, especially where there is partial occlusion, with repeated tests, it may serve as a therapeutic measure.

The test is not applicable to all patients; each case must be properly selected in order to obtain satisfactory results. There must be no bleeding present, no elevated temperature, no pelvic tenderness, no sub-acute tubal inflammation, no tumors or purulent discharge. The patient must be free from serious cardiac or respiratory disease. It can readily be seen that if the test is employed in the presence of infection in the generative tract an acute exacerbation of an old chronic affair will be brought to the surface—the test will prove fruitless and new pathology produced. Even when the cannula is first introduced and bleeding occurs, no further attempt should be made with the test, for it is an index to an inflammatory process in the cervix or endometrium.

Perhaps the most suitable time for the performance of the test is about seven days after cessation of a regular menstruation. The endometrium is then in a quiescent state and one is less apt to meet with cases of early pregnancy if the above stated post-menstrual interval is observed. Coitus should not be permitted before test is made.

In normal (open) tubes no more than 20 to 30 Mm. Hg. is required to keep up the flow of gas. As a safe rule to follow it is best not





A—Reduction valve; B—Mercury column; C—Siphon with distilled water; D—Clamp for regulating gas flow; E—Automobile watch attached to table; F—Cannula; G—Gas tank (with Carbon Dioxide) invisibly attached; can be removed through opening on table; H—Sliding glass with finger notch. The lower portion of Cabinet is glass encased. In Fig. 2 the glass top has been removed. Felt rollers are used on cabinet permitting same to be easily removed.

to exceed a pressure of 200 Mm. Hg. in any given case.

The test is a comparatively safe office procedure and no anesthetic is required. Personally, I employ head mirror with reflection obtained from electric globe installed above examining table thus insuring a better vision on the exposed field.

A drop in intrauterine pressure during an examination means that gas has passed through one or both tubes. A pressure of 200 Mm. on repeated trials indicates the closure of both tubes.

As soon as test is completed, patient is placed in knee-chest posture from five to ten minutes and if patency is demonstrated the gas will rise much faster towards diaphragm. As soon as the upright position is assumed, pain may be present in one or both shoulders. This symptom is present in over 90 per cent of the cases in which gas has passed into the abdomen and is very positive evidence that the tubes are patent.

301 East Franklin Street.

### FOREIGN BODY IN THE ESOPHAGUS: CASE REPORT.

By ELBYRNE G. GILL, M. D., Roanoke, Va.

Patient, M. B., age four years, was admitted to the hospital June 21, 1928. The patient was referred by Drs. Shepperd, Nicholson and Short, of Jenkins, Ky. The following history was given by the parents: On June 20th (twenty-four hours prior to admission), the child swallowed a large penny and vomited soon afterwards. She had not had anything to eat or drink during past twenty-four hours. Previous attempts to remove the coin had been made prior to the admission to the hospital. The temperature on admission was 103.2 degrees, pulse 140, respiration 32. Urinalysis showed acetone and diacetic.

Fluids were given by mouth also bismuth sub-nitrate grs. 5, and calomel grs. 1/3, were given every four hours until seven doses had been administered. This was to relieve the esophagitis which was rather marked. Glucose 5 per cent solution was given in 100 c.c. doses per rectum every four hours until four doses had been administered. The temperature gradually subsided during the first forty-eight hours after admission. The acetone and diacetic acid also disappeared.

The physical examination was negative.

The X-ray examination revealed a large coin in the esophagus near the cardiac orifice and opposite the eighth interspace anteriorly.



Shows coin in esophagus.



Photograph of coin removed.

The third day after admission the child's temperature was normal and urine was negative. The condition now being favorable, the child was prepared for operation. Esophagoscopy under ether anesthesia, the coin was seen partially embedded in the swollen mucosa of the esophagus about two inches above the cardiac orifice. The coin was removed and the child made an uneventful recovery. It was an old English penny and measured 2½ cm. in diameter.

COMMENT.—While the foreign body was in the esophagus, when the patient was admitted, ample time was given to prepare the patient properly for the operation. Had esophagoscopy been attempted immediately after admission, the termination would probably have been fatal.

*Gill Memorial Eye, Ear and Throat Hospital, Department of Bronchoscopy.*



# Medical News of the Past      Proceedings of Societies

## FORTY-FIVE YEARS AGO.

At the fifteenth annual session of the Medical Society of Virginia, at Rawley Springs, Va., September 9-12, 1884, the following were elected members of the first State Board of Medical Examiners in Virginia—two from the State at large and three from each Congressional District:

*Examiners from the State at large*—Drs. Wm. C. Dabney, Charlottesville, and F. D. Cunningham, Richmond.

*First District*—Drs. S. W. Carmichael, Fredericksburg; O. B. Finney, Onancock; W. W. Douglas, Middlesex County.

*Second District*—Drs. Thomas B. Ward, Norfolk; L. L. Lankford, Bowers; Jesse H. Peek, Hampton.

*Third District*—Drs. R. A. Lewis, Richmond; Charles R. Cullen, Richmond; O. A. Crenshaw, Richmond.

*Fourth District*—Drs. William J. Harris, Nottoway; Hugh Stockdell, Petersburg; J. Herbert Claiborne, Petersburg.

*Fifth District*—Drs. W. L. Robinson, Danville; T. B. Greear, Rocky Mount; Rawley W. Martin, Chatham.

*Sixth District*—Drs. Harvey Black, Blacksburg; H. Gray Latham, Lynchburg; Oscar Wiley, Salem.

*Seventh District*—Drs. William P. McGuire, Winchester; J. H. Neff, Harrisonburg; Hugh T. Nelson, Charlottesville.

*Eighth District*—Drs. C. C. Conway, Rapid Ann Station; Bedford Brown, Alexandria; Alex. Harris, Jeffersonton.

*Ninth District*—Drs. S. W. Dickinson, Marion; Robert J. Preston, Abingdon; R. D. Huffard, Chatham Hill.

*Tenth District*—Drs. Henry M. Pattison, Monterey; Z. C. Walker, Gish's Mill; G. D. Meriwether, Pedlar Mills.

The names of the above thirty-two men were presented the Governor of the State for his approval. The term of office then as now was for four years, or until their successors were appointed and qualified. The first board entered upon its duties on the first day of January, 1885. Dr. William C. Dabney was the first president of the Board and Dr. Hugh T. Nelson the first secretary.

## Medical Examining Board of Virginia.

At the meeting of the Board in Richmond, December 4-7, 1928, twenty-five applicants representing seventeen institutions were granted certificates to practice medicine in Virginia, as follows:

- Dr. Marion B. Bailey, Warrenton, Va.
- Dr. Richmond J. Beck, Richmond, Va.
- Dr. William Hoge Carr, Bluefield, W. Va.
- Dr. Edward I. Davies, Hopewell, Va.
- Dr. Mahlon Wingate DeLoatch, Norfolk, Va.
- Dr. Charles Holmes Epting, Stonega, Va.
- Dr. Harold Edgar Hansen, Roanoke, Va.
- Dr. Millard Daniel Hill, Richmond, Va.
- Dr. Claude Vermont Hollowell, Norfolk, Va.
- Dr. Philip Jacobson, Petersburg, Va.
- Dr. William Henry Lawson, Jr., Atlanta, Ga.
- Dr. Edwin Partridge Lehman, University, Va.
- Dr. Robert Emmet Moran, Washington, D. C.
- Dr. Edward Washington Murray, Chicago, Ill.
- Dr. John Robert Owens, Pittsburgh, Pa.
- Dr. Harold Walter Potter, Newport News, Va.
- Dr. Lewis Charles Pusch, Richmond, Va.
- Dr. George Dudley Riggs, Bristol, Tenn.
- Dr. Herman David Scarney, Roanoke, Va.
- Dr. Fletcher Bell Sharp, Toronto, Ont.
- Dr. Francis Bailey Teague, Roanoke, Va.
- Dr. Sydney F. Tichborne, Toronto, Ont.
- Dr. Marcellus E. Toney, Baltimore, Md.
- Dr. John Joyner Tyson, Norfolk, Va.
- Dr. Harry Pemberton Williams, Danville, Va.

## Alexandria (Va.) Medical Society.

At the March meeting of this Society, Dr. Robert E. Moran, a surgeon who has recently opened offices in that city, was admitted to membership.

In view of the success and accomplishments of the Virginia Tuberculosis Society in their recent campaign and clinics held in Alexandria, the Society appointed Dr. H. A. Latane and Dr. Llewellyn Powell as clinicians to conduct monthly clinics at the local Health Department.

**The Warwick County Medical Society,**

At its annual meeting, elected Dr. M. B. Beecroft president; Dr. Samuel Downing vice-president, and Dr. B. L. Carleton secretary-treasurer. All officers are of Newport News.

At the meeting on February the 11th, Dr. H. W. Potter, of Newport News, was elected a member.

We are advised by the secretary that this is a very active society, meeting twice a month. At each meeting, papers and addresses are delivered by local and out of town doctors.

**The Wise County Medical Society,**

At its annual meeting, held in Norton, on February the 27th, elected the following officers for the ensuing year: President, Dr. W. B. Peters, Appalachia; vice-presidents, Drs. S. P. Gardner, Derby; T. S. Ussery, Norton, and F. S. Givens, Wise. Dr. W. R. Culbertson, Norton, was re-elected secretary-treasurer.

**The Northampton County Medical Society**

Held its regular quarterly meeting at the Northampton-Accomac Hospital at Nassawadox, Va., March the 13th, at which time five new members were admitted. Short addresses were made by Drs. H. L. Denoon, Jr., and John L. Hamilton, of the Hospital Staff, following which a delightful course dinner was served at the hospital. Dr. Sheppard K. Ames, Cape Charles, is president, and Dr. J. Mortimer Lynch, Cape Charles, secretary.

**The Southwestern Virginia Medical Society**

Held its regular semi-annual meeting in Pulaski, March 25th and 26th, under the presidency of Dr. A. M. Showalter, of Christiansburg. Dr. E. G. Gill, of Roanoke, is secretary. Four doctors were admitted to membership. The next meeting will be held at Galax, Va., the latter part of September, at which time will also be held the election of officers.

**University of Virginia Medical Society.**

At the meeting on January 7th, the new president, Dr. Carl Speidel, presided.

Dr. Dudley Smith presented a patient with Xeroderma Pigmentosa who had been shown to the society in November. Under radium treatment the large tumor of the nose had entirely disappeared, and rest and proper food had caused a marked general improvement.

A case of toxic psychosis was described by Dr. P. P. T. Wu. No etiologic agent had been

discovered and the patient was presented as a diagnostic problem.

Dr. Robert B. Bean demonstrated a very elaborate model of the peritoneum which had been prepared under his direction.

"A Human Monster of the Fourth Week", was the subject of a paper read by Dr. H. E. Jordan. This is to appear in the Journal at a later date.

The main paper of the evening was read by Dr. C. Bruce Morton. The title was, "Observations on Peptic Ulcer; Clinical Experiments with Gastro-duodenal Analysis." Discussion was led by Dr. Edwin P. Lehman.

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At the meeting of January 21st, the principal paper of the evening was, "Tularemia in Virginia", read by Dr. Staige Davis Blackford. This paper, which is to appear in the Journal, was augmented by the report of a case clinically diagnosed as Tularemia but which at autopsy showed nothing characteristic of the disease. The blood of the patient had been repeatedly positive for agglutination with B. Tularensis. Dr. Graham reported the autopsy findings in this case in which gangrene of the lung was the outstanding feature.

Dr. R. A. Gandy reported a case of non-tuberculous spontaneous pneumothorax and briefly reviewed the outstanding points in the etiology of the condition and also took up the classification of spontaneous pneumothorax in general. Discussion of this case was led by Dr. H. B. Mulholland.

An interesting case of "Massive Collapse of the Lung" successfully treated by posture and enforced coughing was reported by Dr. Edwin P. Lehman. The condition appeared two days after a simple appendectomy and the diagnosis was corroborated by X-ray films and the return of the lung to normal was graphically shown. This case and the subject of Massive Collapse was discussed by Drs. Wood, Flippin, Woodward and Lehman.

Dr. Brumfield demonstrated a number of pathological specimens which had been mounted according to the most modern technique. The use of black or dark green as a background was most effective.



## Woman's Auxiliary, to the Medical Society of Va.

### Publicity Desired.

We believe it would be a stimulus to better work to have regular reports from the various local auxiliaries, telling of their meetings and of the work being done. In view of this, letters were recently sent presidents of the various auxiliaries in the State, requesting them to appoint Publicity Chairmen who would regularly send reports to this journal for publication. This may create an interest in some inactive auxiliary.

Again, we wish to urge that the Auxiliaries send regular reports for publication.

## The Truth About Medicine

In addition to the articles enumerated in our letter of January 26th, the following have been accepted:

E. Bilhuber, Inc.

Lenigallol.

Ciba Co., Inc.

Dial-Ciba

Tablets Dial-Ciba, 0.1 Gm. (1½ grains)

Elixir Dial-Ciba.

### NEW AND NON-OFFICIAL REMEDIES.

Tablets Ephedrine Hydrochloride—Squibb, ¾ grain.—Each tablet contains ephedrine hydrochloride—Squibb (*The Journal*, September 1, 1928, p. 645), ¾ grain. E. R. Squibb & Sons, New York.

MacDowell's Wheat-Nut-Casein Dietetic Flour.—A flour prepared from wheat, edible nuts and casein, to which has been added a leavening mixture composed of potassium bitartrate and sodium bicarbonate and sodium chloride as flavoring. The product has approximately the following composition: protein, 28.67; carbohydrate, 28.68; fat, 18.69; ash, 5.64; fiber and pentosans, 7.59; and water, 8.49. MacDowell's wheat-nut-casein dietetic flour is proposed for use in the dietetic treatment of diabetes and wherever restriction of carbohydrate in the diet is desired. MacDowell Brothers, Ogdensburg, N. Y.

Pirquet Test for Tuberculosis (Bovine Type).—Tuberculin—Koch (New and Non-official Remedies, 1928, p. 368), marketed in capillary tubes, put up in packages, respectively, of one tube, two tubes and ten tubes, accompanied by controls. H. K. Mulford Co., Philadelphia.

Tuberculin Ointment (Moro Ointment) (Bovine Type).—An ointment containing tuberculin—Koch (New and Non-official Remedies, 1928, p. 368), 50 per cent, with an equal part of hydrous wool fat. H. K. Mulford Co., Philadelphia.

Tuberculin Intracutaneous (Bovine Type).—Marketed in single packages of one intradermal syringe containing tuberculin—Koch (New and Non-official Remedies, 1928, p. 368), 0.2 mg. in physiological solution of sodium chloride, 0.05 c.c.; in packages of five intradermal syringes each containing tuberculin—Koch (New and Non-official Remedies, 1928, p.

368) 0.2 mg. in physiological solution of sodium chloride; and in single vial packages containing tuberculin—Koch (New and Non-official Remedies, 1928, p. 368) 0.012 Gm. in physiological solution of sodium chloride, 3 c.c. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 19, 1929, p. 231).

Concentrated Liver Extract—Armour.—A solution of a water-soluble fraction extracted from fresh mammalian liver. One hundred c.c. represents fresh liver, 767 Gm (1 fluid ounce represents 8 ounces avoirdupois). Concentrated liver extract—Armour, is used in the treatment of pernicious anemia. Its value in other types of anemia has not been established. Concentrated liver extract—Armour, is administered orally. (Armour & Co., Chicago).

Ampules Dextrose, U. S. P., 10 Gm., 20 c.c.—Each ampule contains dextrose, U. S. P. (New and Non-official Remedies, 1928, p. 244), 25 Gm., in distilled water, 20 c.c.; buffered with sodium glycerophosphate, 0.03 per cent. Abbott Laboratories, North Chicago.

Ampules Dextrose, U. S. P., 25 Gm., 50 c.c.—Each ampule contains dextrose, U. S. P. (New and Non-official Remedies, 1928, p. 244) 25 Gm., in distilled water, 50 c.c.; buffered with sodium glycerophosphate, 0.03 per cent. Abbott Laboratories, North Chicago.

Pollen Allergen Solutions—Squibb.—In addition to the products listed in New and Non-official Remedies, 1928, p. 31, the following products marketed in 5 c.c. vials, have also been accepted: Dandelion Pollen Allergen Solution—Squibb; English Plantain Pollen Allergen Solution—Squibb; Goldenrod Pollen Allergen Solution—Squibb; Perennial Rye Grass Pollen Allergen Solution—Squibb; Ragweed (Dwarf) Pollen Allergen Solution—Squibb; Ragweed (Giant) Pollen Allergen Solution—Squibb; Red Top Pollen Allergen Solution—Squibb; Russian Thistle Pollen Allergen Solution—Squibb; Sunflower Pollen Allergen Solution—Squibb. E. R. Squibb & Sons, New York.

Pollen Allergen Solutions—Squibb.—5 c.c. vial packages of the following products have also been accepted: Bermuda Grass Pollen Allergen Solution—Squibb; June Grass Pollen Allergen Solution—Squibb; Mugwort Pollen Allergen Solution—Squibb; Orchard Grass Pollen Allergen Solution—Squibb; Sagebrush Pollen Allergen Solution—Squibb; Western Ragweed Pollen Allergen Solution—Squibb. E. R. Squibb & Sons, New York.

Tablets Cinchophen—Abbott, 5 grains.—Each tablet contains cinchophen (New and Non-official Remedies, 1928, p. 123), 5 grains. Abbott Laboratories, North Chicago.

Sulpharsphenamine—Squibb, 0.9 Gm. Ampules.—Each ampule contains sulpharsphenamine—Squibb (New and Non-official Remedies, 1928, p. 84), 0.9 Gm. E. R. Squibb & Sons, New York. (Jour. A. M. A., January 26, 1929, p. 313).

### PROPAGANDA FOR REFORM

Lending Aid and Comfort to Quackery.—The federal officials whose business it is to prosecute the exploiters of medical fakes and frauds have for years complained that the government is much hampered in its legal assaults on quackery by the fact that physicians of standing will sell their expert testimony to the nostrum exploiters. Regardless of the nature of the evidence or opinion, the appearance of a reputable physician on the side of the quack may lead a jury to believe that the nostrums under consideration are worth while and that the claims made for them are true. Recently hearings have been held before the Federal Trade

Commission in the matter of a quack "obesity cure" known as "Marmola". It is sold by one Edward D. Hayes, who at the present time does business under the trade name "Raladam Co." He has repeatedly been prosecuted for the exploitation of quack nostrums. Marmola, according to the exploiters, has essentially the following composition: Desiccated thyroid  $\frac{1}{2}$  grain, extract of bladderwrack (fucus vesiculosus) 1 grain, extract of phytolacca  $\frac{1}{2}$  grain, extract of cascara sagrada  $\frac{1}{4}$  grain, phenolphthalein  $\frac{1}{4}$  grain. For the government Dr. Charles A. Elliott, Solomon Strouse and Rollin T. Woodyatt testified as to the effects of the indiscriminate use of thyroid substance by the public. Not one of these three men charged the government a cent—they donated both their time and special knowledge. At a subsequent hearing Edward D. Hayes had expert witnesses to testify that Marmola was a scientific (!) preparation and that it was harmless when used according to direction. The men that testified to this effect were: Robert W. Keeton, Alonzo C. Tenney, Frank L. Stone, George W. Funck, Harold S. Hulbert, Samuel F. Haverstock. Each of these men is a member of his local medical society and, through that, has qualified as a Fellow of the American Medical Association. Here, then, is a sweet spectacle: the American Medical Association attempting to protect the public against quack remedies, while individual members lend aid and comfort to the exploiters of quack remedies. (Jour. A. M. A., November 3, 1928, p. 1377).

Treatment of Typhoid by So-called Detoxicated Vaccine.—The formaldehyde detoxification principle elaborated by Ramon has been applied to typhoid vaccine. The method consists in incubating cultures of the typhoid bacillus with formaldehyde in such a manner that the toxic principle is destroyed while the antigenic properties remain, and is similar in principle to diphtheria toxoid (which has been admitted to New and Nonofficial Remedies). The number of cases on which this vaccine was tried does not permit the drawing of conclusions as to its value. (Jour. A. M. A., November 3, 1928, p. 1378).

Pertussis Bacillus Vaccine.—Vaccine made from stock cultures has been used with a great variety of success. Certainly as used it does not prevent all cases, nor does it cure a great percentage of those who have contracted the disease. Its use is not harmful so far as we know and the reactions are slight, if any. For this reason it may seem desirable at times to use them even though results may not be encouraging. (Jour. A. M. A., November 3, 1928, p. 1394).

Deaths from Contaminated Toxin-Antitoxin.—At Bundaburg, Australia, last January, twelve of twenty-one children inoculated with diphtheria toxin-antitoxin at one time died within the next few days. An extensive investigation was made into the causes of the fatalities. The mixture used was issued in rubber-capped bottles, but without the addition of an antiseptic, in order to avoid possible risk from freezing. Each bottle was to be used at one time, but this was not done at first, and fluid was withdrawn from one bottle several times in the course of a week. The investigation brought out that the symptoms and the post mortem and bacteriologic observations were all suggestive of an overwhelming infection with staphylococci. Evidently the vial was contaminated during the previous injections, and in the absence of an antiseptic the organisms multiplied in the fluid. (Jour. A. M. A., November 17, 1928, p. 1553).

## Book Announcements

**The Technic of Local Anesthesia.** By ARTHUR E. HERTZLER, M. D., Ph. D., LL. D., F. A. C. S., Professor of Surgery in University of Kansas, etc. **FOURTH EDITION.** St. Louis. The C. V. Mosby Company. 1928. Octavo of 284 pages, with 146 illustrations. Cloth. Price \$6.00.

**The Climacteric (The Critical Age).** By GREGORIO MARANON, Professor of Medical Pathology in the Madrid General Hospital; Member of the Royal National Academy of Medicine. Translated by K. S. STEVENS. Edited by CAREY CULBERTSON, M. D., F. A. C. S., Associate Clinical Professor of Obstetrics and Gynecology, Rush Medical College of the University of Chicago, etc. St. Louis. The C. V. Mosby Company. 1929. Octavo of 425 pages. Cloth. Price, \$6.50.

**Injection Treatment of Internal Hemorrhoids.** By MARION C. PRUITT, M. D., L. R. C. P., S. (Ed.) F. R. C. S., (Ed.) F. A. C. S., Associate in Surgery, Medical Department, Emory University, Georgia; Proctologist, Davis-Fischer Sanitarium; Formerly, Resident Surgeon, Westminster Hospital, London, England, etc. St. Louis. The C. V. Mosby Company. 1929. 137 pages. Illustrated. Cloth. Price \$3.00.

**Endocrine Diagnostic Charts.** With Other Related Information Compiled by HENRY R. HARROWER, M. D. 1929. The Harrower Laboratory, Inc., Glendale, Calif. 144 pages. Leather. Price \$1.00.

**The Injection Treatment of Hemorrhoids.** By DR. CHARLES CONRAD MILLER. Modern Surgery Publications. Chicago. 1929. 12 mo. of 124 pages. Illustrated. Cloth.

**International Clinics.** A Quarterly of illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Surgery and the Specialties. By LEADING MEMBERS OF THE MEDICAL PROFESSION THROUGHOUT THE WORLD. Edited by HENRY W. CATTELL, M. D., Philadelphia, with Collaborators. Volume I. Thirty-ninth Series, 1929. Philadelphia and London. J. B. Lippincott Company. 1929. Octavo of 303 pages. Cloth.

**Birth, Stillbirth, and Infant Mortality Statistics for the Birth Registration Area of the United States. 1926. PART I, SUMMARY AND RATE TABLES AND GENERAL TABLES.** Quarto of 253 pages. Paper. Sold only by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. Price 60 cents.

**Adventuring for Health.** A Series of Expeditions in Behalf of the Metropolitan Life Insurance Company's Industrial Policyholders. **WELFARE DIVISION,** Metropolitan Life Insurance Company. Home Office—New York. This booklet tells in pictures, in words, and in statistics the story of the twenty years since this Company began its program of health education of policyholders.



# Virginia Medical Monthly

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## Editorial

### Comments on Cholesterol and its Significance.

A substance forming a large part of gallstones and associated in the pathology of the bile tract must ever engage the interest of the reading medical man. If no other significance could be assigned to its presence, this one should be quite enough to make inquiry into new investigations and considerations of this material. Much wider significance, of course, as recent physiologic studies show, must be given to this important ingredient of gallstones because it is here found only in one of its pathologic forms, while it occupies prominent and essential positions in the various structures of the body. This substance is found, as physiologists tell us, in animal fats and oils, in the bile, the blood, the brain tissue, the medullated sheaths of nerve fibers, the liver, and the suprarenal bodies. This substance is likewise widely distributed as phytocholesterin in plants which comprise so much of the food forms of animals.

While active discussion has occurred over this substance and its significance and while much remains to be learned of its nature, it is known to occupy an important place in tissue life of the brain and nervous system, and other structures. It is known to be a non-nitrogenous substance which seeks elimination from the body through the bile, the intestinal mucosa, and the skin, and is an ingredient of milk. A recent resume of a paper by Dr. E. Noble Chamberlain\* draws attention especially to the skin as a site of excretion of the substance.

It is believed that cholesterol, which, as before stated, forms so important a part in the brain and nerve and blood cell construction, is derived from the food in large measure, and, also manufactured or synthetically formed, in certain times of need, supplementarily, by the suprarenal glands. This latter view is as yet a subject of question, but the author supports the point.

The uses of cholesterol are rather well established in that it is required for the daily replacement of the breakdown of cellular tissues constantly going on in the body where it forms a part. The quota required for this is furnished through the medium of the blood in form of blood cholesterol. In any individual, Chamberlain observes, the blood cholesterol is constant, due to the balance between intake by food and excretion and between synthesis and destruction. Besides the suprarenal, it is suggested that the spleen takes part in the regulation of blood cholesterol balances.

Our readers interested, as they must be, in all questions touching upon the construction and maintenance of integrity and growth of the central nervous system and structure of blood cells, may note that this fat-related substance is derived from animal and plant foods, and synthetically produced in the body under certain conditions, that it is probable that cholesterol possesses notable antihemolytic properties, that it may play an important role in processes of blood coagulation and sedimentation of red cells, that the relation of immunity in tissues and blood is closely tied up with a rise of blood cholesterol, and may have an important and direct part in immunity against infection. So fat metabolism, and blood and brain structures and functions are apparently suggestively associated in a close correlation of no mean significance.

Finally, in the matter of its uses, the author directs attention to recent work of irradiation of ergosterol in the production of that important vitamin D: in that, plant life and animal fats may jointly be the source of it in the body. But it is in the relation of cholesterol to the sick body that practitioners will find its appeal as a working point. So we may point out briefly suggestive relations of cholesterol to certain important pathologic problems.

\*The British Medical Journal, March 2, 1929, Page 400.

## HYPERCHOLESTERINEMIA

An excess of blood cholesterol is noted in certain forms of nephritis: marked rises in blood cholesterol in the type of nephritis and seems to bear a proportional relation to the degree of oedema and, too, in cases where the oedema disappeared and the hypercholesterinemia remained, the prognosis was found to be more unfavorable. In cases of acute Bright's disease, likewise, similar increase of blood cholesterol was observed but in the interstitial type of nephritis, there was no excess of blood cholesterol unless arteriosclerosis was a dominating feature. Chamberlain observed that in arteriosclerosis alone hypercholesterinemia was associated. Some experiments in the production of atheroma in rabbits by cholesterol feeding have been unavailing in explaining this association in man.

Diabetes offers another group of cases with high blood cholesterol and the question of fat feeding and lipemia and acidosis are interrelated and as yet not understood. In diseases of the liver hypercholesterinemia was noted and particularly found in liver disease and obstructive jaundice which may reasonably result from retention alone. In hemolytic jaundice, it was found, however, that hypocholesterinemia existed, and this fact may serve as the means of diagnostic value here. Formation of gall-stones from cholesterol in the bacterially infected tract or in an over-cholesterol loaded bile are deposited in the gall-bladder. The nature of this derangement of cholesterol in the production of gall-stones is yet, however, unsettled.

## HYPOCHOLESTERINEMIA

Low blood cholesterol cases were associated in the review with most forms of anemia. Anemia of malignant disease was attended by low blood cholesterol. In cancer it was observed that "plasma cholesterol was greater than that for whole blood". This was found to be the reverse of conditions in the normal body and in other diseases than cancer. Further, in bacterial infectious processes in the body of any marked degree, hypocholesterinemia existed and seemed to possess proportionate values to the degree or intensity of the infection. Finally, attention was drawn by the writer to the deposition of cholesterol in various places in the body, such as the

arterial walls, in the retina and vitreous and in xanthomatosis.

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## News Notes

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### Plans Developing for Charlottesville Meeting.

Plans have been made to open the new medical buildings at the University of Virginia at the time of the State Society meeting, prominent speakers having been invited for this occasion. Following the morning exercises, there will be a luncheon for all the visitors. This will add greatly to the interest of our meeting in Charlottesville, October 22nd, 23rd and 24th.

The Albemarle County Medical Society has appointed the following committee in charge of the meeting of the Medical Society of Virginia:

Dr. Lawrence T. Royster, General Chairman.

Dr. W. E. Brown, Finance.

Dr. T. H. Daniel, Entertainment.

Dr. W. D. Macon, Hotels and Meeting Halls.

Dr. M. L. Rea, Reception, Automobiles and Golf.

Dr. D. C. Smith, Exhibits—Scientific and Commercial.

Dr. A. F. Voshell, Badges and Publicity.

The following committee has been appointed by the University of Virginia Department of Medicine to cooperate to the fullest with the above committee:

Dr. Wm. H. Goodwin, chairman

Dr. V. W. Archer

Dr. W. E. Bray

Dr. J. C. Flippin

Dr. H. E. Jordan

Dr. J. M. Kindred

These committees are making attractive plans for this meeting.

### Registry of Technicians.

In accordance with the trend of the times, the practice of medicine is utilizing more and more the services of trained lay help. The advent of the laboratory as an indispensable aid to the diagnosis of disease has created a new specialty in medicine; that of clinical pathology. In order to carry on the numer-



ous technical tests required in scientific diagnostic procedures, the laboratory director has found it necessary to train the technical personnel. With the standardization of hospitals and the urgent call for qualified laboratory assistants there has arisen a demand for proper standardization of the preliminary education and technical training of those enrolled in this new profession.

There has also been a desire on the part of those engaged in this useful calling to raise their status, similar to the evolution of the trained nurse of a generation ago. This want is now being taken care of by a national organization consisting of a body of men who are most vitally interested in elevating the intellectual and technical status of laboratory workers. The American Society of Clinical Pathologists has taken upon itself the task of organizing a Registry of Technicians with rules under which those qualified by education, technical instruction, and moral character will receive a certificate.

The subject is of interest to physicians in every field of endeavor as many of them are desirous of securing the services of technicians to carry on the routine laboratory procedures.

There is no doubt that the elevation of the laboratory technician to the status of a respected and useful calling will be a great help to the medical profession, to the patient, and to the scientific practice of medicine.

The headquarters of the Registry of Technicians of the American Society of Clinical Pathologists are located in the Metropolitan Building of Denver, Colo.

Another very desirable feature of the Registry is the facilities it offers in finding suitable placement for registrants and in aiding physicians to find desirable applicants.

Technicians in this section desiring information and application blanks may write Dr. Regena C. Beck, Stuart Circle Hospital, Richmond, Va.

#### **Improved Sanitation is Banishing Typhoid.**

The State Health Department expresses great satisfaction over the typhoid record for 1928. It was stated today at the office of the health commissioner that when 1924 showed a death total of 209 from typhoid fever, it was thought that it would be many years before this figure would be materially lowered. However, 1928 proved the banner year. There

were only 154 typhoid deaths that year, a rate of about 6 to the 100,000 of inhabitants.

Better sanitation is the solution of the problem. Year by year interest in this phase of health work has been growing; and now the interest is greater than it has ever been. Dr. Ennion G. Williams, state health commissioner, is endeavoring in every way to accelerate that interest. The record of the big cities, not only in Virginia but throughout the country, has shown what can be accomplished by perfect sanitation. Although it is a more difficult task to sanitize rural sections than cities, the health department is now striving to secure a 100 per cent sanitized State. Now is the time to start new work and repair old places. The fly season will be here soon—and flies are the chief carriers of filth germs.

#### **The Annual Report of St. Elizabeth's Hospital,**

Richmond, Va., for 1928, shows that during that year there were thirteen publications by members of the staff of the hospital, in seven different medical and surgical journals. There was one book published, "Operative Surgery", third edition, by J. Shelton Horsley; C. V. Mosby, publishers, St. Louis; 893 pages; 756 illustrations by Helen Lorraine.

A decided increase in the number of patients was noted during the year, there being a total of 1,355 admitted in 1928, as compared with 1,228 in 1927. Of these 1,355 patients, there were fifty deaths, making a general hospital mortality of 3.69 per cent.

Statistics of the out-patient department show a marked increase of visits during 1928 over all previous years; the total number of out-patient visits for 1928 was 2,684. There were 14,020 laboratory examinations, showing a marked increase in this work also.

In October, 1928, an annex was added to the hospital, allowing an addition of twelve beds, more spacious quarters for medical illustration, for the hospital library, and for filing of records. A laboratory for a consulting bacteriologist was established, with Mr. Aubrey H. Straus, as director.

#### **United States Honors Virginia Health Officer.**

Dr. Robert P. Cooke, Lexington, Va., now health officer for Rockbridge County, has just received a Congressional gold medal for dis-

tinguished service. This is a delayed recognition of an act of outstanding heroism.

When Dr. Walter Reed was starting his investigation of the causes of yellow fever and its methods of transmission, he was compelled to use volunteers to disprove or to prove certain factors. At that time the great majority of people thought that the disease was carried by contact. If that theory could be proved a great step would have been taken; if that theory could be disproved much time would be saved.

Dr. Cooke was one of the small group who offered to sleep in the uncleaned hut of a man who had died of yellow fever. The outcome of this heroic experiment and the subsequent study of the mosquito as a carrier gave to Dr. Reed the information upon which is based the campaign which is ridding the world of yellow fever. These experiments were conducted in Cuba in 1900.

### Our New Volume

With this issue, we commence our fifty-sixth year of continuous publication. The success with which we have met has been due largely to the cooperation of our members and contributors, and we thank you for your kindly interest.

In addition to much splendid reading matter, we have been carrying a number of A-1 advertisements. These are the financial backbone of the MONTHLY and once again we urge our readers to look over the advertising pages each month. In writing advertisers, please state that you read of their products in the VIRGINIA MEDICAL MONTHLY. It helps us and pleases them to know how you became acquainted with them.

In this issue, we have started a department known as "Medical News of the Past." We hope to have this from time to time and will appreciate information furnished by readers.

### Dr. and Mrs. M. Pierce Rucker,

Richmond, recently enjoyed a visit to Daytona, Fla., having motored there with friends.

### Dr. John M. Biedler

And his mother, of Harrisonburg, Va., recently suffered minor injuries in an automobile accident on the Washington-Richmond Highway, while on a motor trip.

### Child Labor in China.

The total number of child workers in modern industrial establishments in China has recent-

ly been estimated by a Chinese student to be well over a million. Many of them are very young. They work from twelve to sixteen hours a day for wages ranging from six to twenty cents a day. Textile, tobacco, and candy factories, hat shops, toy shops, and book binderies are among the industries commonly employing children.

### Birth.

Mr. and Mrs. J. C. Grigg (Dr. Ruth Mason Grigg), Petersburg, Va., announce the birth of a daughter, Cecilia Spottswood, on March the 25th.

### Dr. J. B. Muncy.

Of Jonesville, Va., is in Philadelphia, where he is taking post-graduate work in gynecology and obstetrics at the University of Pennsylvania, Graduate School of Medicine.

### German Baederkalander

The Cunard Line has received a supply of the German Baederkalander, a scientific reference book on German health resorts and sanatoria, a book helpful to physicians and medical students going to Europe, especially to Germany.

This booklet can be obtained gratis from The Cunard Line, 25 Broadway, New York.

### Tulane University's Behavior Clinic.

A behavior (child-guidance) clinic has been established in connection with the school of social work of Tulane University, New Orleans. A behavior clinic examines a child to discover the causes of his misbehavior or mental difficulties and advises the parent or teacher as to how best to help the child to overcome them. In other words, it does for the mind of a child the same sort of service that a child-health clinic does for his body.

### Dr. Wilbur M. Phelps,

Staunton, Va., Colonel, Medical Reserves, commanding 305th Medical Regiment, was elected president of the Department of Virginia, Reserve Officers' Association of the United States, to succeed Dr. Junius F. Lynch, of Norfolk, Colonel, Medical Reserves, at the State Convention, held in Richmond, March 16th.

### Dr. J. B. Dalton

Has returned to Richmond, Va., and reopened his offices at 1100 West Franklin Street. He is now limiting his work to orthopedics.



**Special Radium Number.**

In March, 1928, *Radiological Review*, of which Dr. Harold Swanberg is managing editor, published a RADIUM NUMBER, in honor of the 30th anniversary of the discovery of that element. The comments were so appreciative that the *Review* has just published its SECOND RADIUM NUMBER. This issue contains contributions from some of the foremost radium therapists of America, and virtually records the present status of radium therapy. The *Radiological Review* is published in Quincy, Ill.

**Appointed to Professorship at Duke University.**

Dr. Harold L. Amoss, for the last seven years associate professor of medicine at Johns Hopkins University, Baltimore, has been appointed professor of medicine at Duke University School of Medicine, Durham, N. C., and will enter upon his duties there in 1930. Dr. Amoss is a Kentuckian by birth and a graduate of the University of Kentucky and Harvard Medical School. Before going to Johns Hopkins he was for ten years connected with the Rockefeller Institute in New York City.

**New Medical Building at University of Virginia.**

The University of Virginia's new medical building will be completed during April, but its formal opening will not take place until October when the Medical Society of Virginia meets in Charlottesville, according to Dr. James Carroll Flippin, dean of the Department of Medicine in the University.

Tuesday, October 22nd, is the date set for the ceremonies in connection with the dedication of the new laboratories. This is the first day of the meeting of the Medical Society of Virginia, which will continue its sessions through October 23rd and 24th.

Part of the new building is already in use. The enlarged out-patient department is quartered on the ground floor of the front wing which connects with the Steele wing of the older hospital building and increases the floor space available for the treatment of these patients about threefold.

The school of clinical pathology under Dr. William E. Bray has also moved into new quarters on the third floor of the central wing. This early change was made necessary in order that laboratories formerly used by Dr.

Bray might be converted into a new hospital ward.

By the end of April all the offices of the administrative and teaching staff of the medical school will be moved into new places. During the early summer the medical library will be brought down from the rotunda basement to the new stack rooms that are being made ready, in connection with spacious reading rooms and study rooms.

Not all of the laboratories will be moved into the new building before the end of this session, but this will probably be done by mid-summer in time for the vacated quarters to be remodeled for other uses before September.

Dr. William H. Goodwin, professor of surgery, representing the University, and Dr. Lawrence T. Royster, professor of pediatrics, representing the Albermarle Medical Society, have been appointed chairmen of two committees working jointly on plans for the formal opening.

Something more than \$1,400,000 has been spent on building and furnishing the new medical group and on other construction made necessary by the enlargement of the space for the teaching of medicine.

**Dr. Mortimer H. Williams**

Has returned from Europe, where he was doing post-graduate work and is again located in Shenandoah Life Building, Roanoke, Va., where he is limiting his practice to diseases of the eye, ear, nose and throat.

**Dr. Charles R. Woolwine,**

An alumnus of the Medical College of Virginia, recently of Davy, W. Va., is now in charge of the medical work at the Virginia Polytechnic Institute, Blacksburg, Va.

**Dr. I. R. Wagner,**

Member of the Medical Society of Virginia, has been transferred from Jefferson Barracks, Mo., to the U. S. Veterans' Hospital, Tucson, Ariz., where he is medical officer in charge.

**The American Proctologic Society**

Will hold its annual meeting in Detroit, Mich., May 13th-15th, under the presidency of Dr. Edward G. Martin, of that city. Any reputable medical man will be welcomed as a guest at this meeting upon payment of the registration fee of \$5.00. This Society is the only organization of medical men who limit their work to the treatment of ano-rectal and colonic disease. For further information, write

the secretary, Dr. Walter A. Dansler, 531 La Salle Building, Minneapolis, Minn.

### **American Otological Society Seeks \$2,500,000 to Prevent Deafness.**

A plan, world wide in scope, for research into the cause, cure and prevention of deafness has just been announced by the American Otological Society. While a fund of \$2,500,000 will eventually be sought to finance the complete plan, an immediate campaign to raise \$500,000 by July 1st and thus continue a program of research started through a grant by the Carnegie Corporation four years ago, has been started. The campaign was launched at a dinner given at the New York Academy of Medicine by the Board of Trustees of the Research Fund on Tuesday, March 12th, to a group of interested laymen and physicians.

It was stated that gifts of \$125,000 had been pledged on condition that the remainder of a half-million dollar fund be raised by July the 1st. The income from this fund will be used to continue work begun in June, 1926, under a grant of \$90,000 by the Carnegie Corporation. This sum was given to begin and partially finance for five years a program of continuous and correlated research in otosclerosis, the hereditary form of chronic progressive deafness.

### **Medical News of the Past.**

Having become much interested recently in looking up information to answer an inquiry about the first State Board of Medical Examiners, we have decided to include in the MONTHLY a department with the above heading. It occurred to us that it might prove interesting to publish in this department, from time to time, facts about medical matters which have happened ten or more years ago. Other inquiries may be "lead strings." Let us hear from you.

### **Supervised Recreation Decreases Juvenile Delinquency.**

The records of the Philadelphia juvenile court show a large amount of delinquency among Negro boys, but practically no Negro boys were brought before the court from a district of the city, where a Negro boys' club has been active for twenty-five years. The club now has a membership of 1,200 and owns a clubhouse valued at \$60,000, which is equipped with a gymnasium, swimming pool, game rooms, and rooms for classes in cooking, carpentry, sign-painting, photography, and various other

subjects. It also owns a camp with accommodations for sixty boys, where vacations have to be limited to periods of one week because of the number of applicants.

### **The Southside Virginia Medical Association**

Held its last quarterly meeting at the Southside Community Hospital in Farmville, Va., March the 12th, with a large attendance. A very interesting program was given and all papers were freely discussed. Following the scientific session, the visiting physicians were entertained at a delightful dinner at the Hospital. The next meeting is to be held on the second Tuesday in June. Dr. R. H. Manson, McKenney, is president, and Dr. R. L. Raiford, Franklin, secretary-treasurer.

### **The American Climatological and Clinical Association**

Is to hold its annual meeting at the Chamberlin-Vanderbilt Hotel, Old Point Comfort, Va., May the 2nd, 3rd and 4th, under the presidency of Dr. J. Woods Price, of Saranac Lake, N. Y. The sessions will prove of interest to those who can attend.

### **Dr. H. Colles Grant**

Has located at 165 Madison Lane, University, Va., where he will be engaged in the practice of medicine and surgery.

### **Venezuela's New Labor Law.**

The employment of children under fourteen in industrial establishments is entirely prohibited by the new general labor law enacted by Venezuela in July, 1923. Minors over fourteen but under eighteen may not be employed for over six hours a day in two three-hour periods separated by a rest of at least one hour: their employment in mines and foundries, on work dangerous to life and health, and on night work—between 6 P. M. and 6 A. M.—is also forbidden. The night work prohibition also applies to all women. No woman and no boy under twenty-one may be employed in an occupation that may be morally harmful. Expectant mothers may not engage in work likely to be injurious to them, and nursing mothers must be allowed two daily periods for feeding their infants, without deduction from their wages.

### **Dr. Theodore M. Trousdale,**

For a time located at Richlands, Va., is taking post-graduate work in diseases of the eye, ear, nose and throat at Long Island College Hospital, Brooklyn, N. Y.



**To Address Chemical Society.**

Dr. Ellice McDonald, chairman of the Cancer Research Fund, University of Pennsylvania, Graduate School of Medicine, Philadelphia, will address the Virginia Section of the American Chemical Society at its meeting in Richmond, April the 12th. This meeting will be held in Room 209 of the Medical College of Virginia. Dr. McDonald's subject is to be "Chemical Aspects of Cell Division in Relation to Cancer." All readers who are interested in this subject are invited to attend.

**Civil Service Examinations.**

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for senior bacteriologist, applications to be on file with the Service in Washington, D. C., not later than April 24; also for associate medical officer and assistant medical officer, and for physician and associate physician, applications for these to be rated as received in Washington until June 29.

**Married.**

Dr. James Frank Folk, Warrenton, Va., and Miss Rose Henrietta Hall, Richmond, Va., March 28th.

Dr. Joseph Arthur Gallant, Richmond, Va., and Miss Ethel Price, of Montreal Canada, February 21st.

**Dr. John B. Fisher,**

Midlothian, Va., was elected president of the Chesterfield County Protective Association, recently organized for the protection of game in that county.

**Decrease in Juvenile Court Cases in Belgium.**

The juvenile courts of Belgium handled 11,000 cases in 1927, a decrease from nearly 17,000 cases handled in 1913. This decrease especially noteworthy since 1920, has been attributed to improved economic conditions among the working classes, decrease in the birth rate during the war, and provision for probation and other measures to prevent and correct juvenile delinquency. A follow-up study of nearly 10,000 former delinquents showed that up to the age of 26 at least 82 per cent had had no further conflict with the law. The Belgian juvenile court has jurisdiction over young people up to the age of 21.

**University of Virginia Clinics.**

The University of Virginia, Department of Medicine, announces that it will renew its clinics for doctors of the State and that the

next course of clinics will be held May 2nd, 3rd and 4th, and will be largely a Therapeutic Clinic. Further information may be obtained from the University.

**Dr. Blanton Page Seward,**

Formerly of Richmond, Va., but now associated with the Lewis-Gale Hospital, Roanoke, Va., was recently elected a fellow of the Royal Society of Medicine of England. There are few members of this Society in the United States and Dr. Seward is the only one from Virginia.

**The Martin County (N. C.) Medical Society**

Held its regular annual meeting on March the 14th, in Williamston, N. C. Dr. William E. Warren was host to the members, all of whom were present. This was a most interesting and instructive meeting and Dr. Warren was elected delegate from his society to the Greensboro meeting of the Medical Society of the State of North Carolina, to be held April 15-17. Dr. V. A. Ward, Robertsonville, was elected president of the Martin County Society for the coming year; E. E. Pittman, Oak City, vice-president; and Dr. Wm. E. Warren, Williamston, was re-elected secretary.

**Good News About Pennsylvania Children.**

In Pennsylvania the death rates from all the epidemic diseases of childhood have been greatly reduced, says the State department of health. In proportion to the child population under 5 years of age in the State only about one-sixth as many children in that age group died from measles in 1927 as died 20 years ago; the deaths from scarlet fever were only about one-seventh, those from diphtheria and whooping cough had been reduced to nearly one-fourth, and those from tuberculosis to approximately one-third.

**Dr. Raymond A. Vondelehr,**

Formerly of Richmond, Va., and a member of the Medical Society of Virginia, has been promoted and commissioned in the grade of Passed Assistant Surgeon in the Regular Corps, effective April 10, 1929.

**New Devilbiss Officials.**

Following the death of Mr. Thomas A. Devilbiss, of Toledo, O., late president of the Devilbiss Company, manufacturers of medicinal nose and throat sprays, the following officers of the Company were elected: President, Allen Cutchess, nephew of Mr. Thomas A. Devilbiss, who has been associated with the firm for many years. Other officers

are Frank Bailey, vice-president and general manager; Frank C. Penoyar, secretary; Walter W. Conklin, treasurer; Howard Devilbiss, son of the late president, assistant secretary; William F. Gradolph, general sales manager.

#### **To Enlarge Physiotherapy Department.**

While it was doing physiotherapy previously, Stuart Circle Hospital, Richmond, Va., in July, 1928, opened a separate department devoted exclusively to this work, Dr. Mark W. Peyser being put in charge of this department. Although Dr. Peyser, on a recent inspection of this work in Washington hospitals, found that by comparison the equipment at Stuart Circle Hospital was modern and sufficient and their technic advanced, this hospital plans to enlarge its physiotherapy department in the near future so as to meet the increased demands for this service.

#### **Dr. Charles C. Carr,**

Formerly of Toms Creek, Va., has moved to Elizabethton, Tenn., for the practice of his profession and has offices in Dungan Arcade.

#### **The Sofie A. Nordhoff-Jung Cancer Prize,**

For the best work in the last years with regard to cancer investigation, has been unanimously awarded by the Commission to Professor Dr. Katsusaburo Yamagiwa, pathologist of the University of Tokyo. Professor Yamagiwa and his co-workers have founded and developed the technic of creating nearly absolutely sure cancer experimentally on animals by tarring their skin and making injections of tar in the breast. Extensive literature has been published on this work. In addition, Professor Yamagiwa has done most ingenious research work on the origin of tumor cells and has given very important information concerning the method to advance and check the growth of tumor cells.

The Commission was composed of Professors Borst, Doderlein, v. Romberg and Sauerbruch.

#### **The Tidewater Medical Society**

Is to hold its next meeting at Mathews Courthouse, Va., Wednesday, April the 24th, at 11 A. M. A large attendance is urged. Dr. Hawes Campbell, Enfield, is president, and Dr. Malcolm H. Harris, West Point, secretary.

#### **\$1,000,000 for a School of Nursing.**

The endowment of \$1,000,000 given by the Rockefeller Foundation to the Yale School of

Nursing is a gift of great significance, since it places on a stable and permanent basis an educational program which offers professional training for nurses comparable with that offered for the professions of medicine, law, and engineering. More than one-half of the 116 students enrolled already hold college degrees.

#### **Dr. P. E. Tucker,**

Buckingham, Va., is spending sometime in New York City, where he is taking up special work in general medicine and diseases of children. He will return home early in July.

#### **Technician.**

Graduate technician wishes position in hospital laboratory or to do laboratory work for a group of physicians. Aged thirty-five years; widow, college education. Excellent references. P. O. Box No. 343, Clifton Forge, Va. (Adv.)

## **Obituary Record**

#### **Dr. John W. Wallace,**

Prominent physician of Covington, Va., died in Charlottesville, April the 1st. Dr. Wallace was a native of Bath County, Va., and sixty-one years of age. After attending the Virginia Polytechnic Institute at Blacksburg, Va., he studied medicine at the University of Maryland, graduating from that school in 1891. He later took up post-graduate work at Johns Hopkins University. Dr. Wallace had been a member of the Medical Society of Virginia since 1891. He was also prominent in Masonic circles. He was thrice married and is survived by his widow and two children by his first marriage.

#### **Dr. Frederic C. Tice,**

Roanoke, Va., died February the 10th, at the age of seventy-one years. He was graduated in medicine from the Jefferson Medical College, Philadelphia, in 1879. Dr. Tice had been for some time a member of the Medical Society of Virginia.

#### **Dr. Isaac Tripp Gorsline,**

Richmond, Va., died March the 12th, at his home in this city, after a short illness. Dr. Gorsline was born at Bethel, Ontario, Canada, in August, 1870, and received his academic education there. He later studied medicine at the Medical College of Virginia, Richmond, and received his diploma from this school in 1905. He had since practiced in this city and was at one time a member of the Medical Society of Virginia. His wife and four children survive him.



# A new milk modifier and diet supplement *with the added value of Vitamin B*

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*Journal A. M. A., August 4, 1928*

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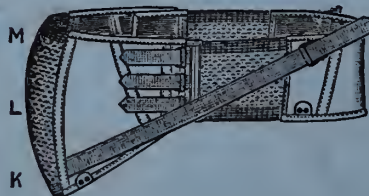
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60th Annual Meeting, Medical Society of Virginia in Charlottesville, Fall 1929



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## THE CARE AND FEEDING OF PREMATURE INFANTS.\*

By W. W. WADDELL, M. D.,  
and  
R. L. KING, M. D.,  
University, Va.

The care and feeding of premature infants is an exceedingly interesting and at times a very difficult task. In our institution all new born babies are turned over to the department of pediatrics immediately after birth, and for this reason we have had the opportunity to care for and observe a fair number of premature infants. The following report has to do with observations on one hundred and twenty consecutive cases.

In recent years, numerous reports have emanated from certain institutions, with almost unlimited wealth at their disposal, and with most elaborate equipment for the care of premature infants. They describe specially constructed nurseries, where temperature and humidity may be automatically kept at a certain figure; water heated bassinets, and specially constructed ambulances. There are available for these institutions, nurses particularly trained in the care of premature infants. For the feeding of such infants, breast milk is available in ample supply. Reports such as these are very interesting, and instructive, but are not particularly helpful to the general practitioner, or to those institutions unable to afford such an outlay. It may not be amiss at this time to venture a report from our hospital, where facilities for the care of premature infants are most inadequate.

We have no specially prepared rooms for the reception of premature infants. With us, such infants are forced to spend their early days in a small wash room, connected with our main nursery. This room is equipped with only one window for ventilation, and in the morning hours, ten to fifteen full term babies receive their daily morning toilets in this small

room. Lack of space makes over-crowding a necessary and a serious evil. Naturally we are not proud of such equipment, and mention it for the consolation of much smaller institutions, and for general practitioners. We believe that fairly good results can be obtained without the aid of expensive equipment.

It is not always an easy matter to determine whether an infant is, or is not premature. The term, premature, as commonly used, refers to those infants born three weeks or more before the usual termination of pregnancy. So far as the care and handling is concerned, we might rightly include those babies who are congenitally weak. A large baby, who is a weakling may require a great deal more care than a healthy small baby prematurely born. So far as this report is concerned, we have included no baby weighing more than 2500 grms. (5 lbs. 8½ ozs.). All infants in this group have been declared premature by the department of obstetrics, from the standpoint of menstrual history.

The causes of prematurity, so far as we were able to determine from our records, were quite numerous. There were nine cases of placenta previa, with labor induced in most cases. Eighteen cases resulted from toxemia of pregnancy, with labor induced in many instances. Syphilis appeared to be the cause of five premature deliveries. Multiple pregnancy resulted in the premature delivery of seven pairs of twins. Deformed pelvis made the induction of labor necessary in only three cases. Premature rupture of the membranes occurred twice; hydramnios once; typhoid fever once; and pyonephrosis once. Labor was induced in two cases on account of tuberculosis, and a chronic abdominal infection in the mother respectively.

### REGULATION OF TEMPERATURE

All new born infants have the heat center very poorly developed, and this is particularly true with premature infants. If these infants

\*From the Department of Pediatrics, University of Virginia.  
Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

are to survive, every effort should be made to maintain normal body temperature. We have found the following procedure quite satisfactory. When a premature infant is born it is received immediately into warm sterile blankets. External heat is applied by means of hot water bottles. The few seconds required for tying and dressing the cord may be sufficient to cause an alarming drop in temperature. A clamp on the cord effectually controls hemorrhage until we feel it safe to expose the baby sufficiently long to tie the cord and apply umbilical dressings. Just as soon as the premature infant is admitted to our nursery, the rectal temperature is taken. It is then retaken at intervals of from one-half to one hour, until we are satisfied that the baby has reacted properly. The temperature is taken beneath the covers with no exposure to the baby. We have found it very essential to maintain the rectal temperature at 98° to 99° if possible, and we have found it possible if the following procedure is carried out. We make use of two thermometers. An ordinary house thermometer is placed beneath the blankets, and this should register between 85° and 95° F. A second clinical thermometer tells us what the infant's actual temperature is at any time. A temperature of 100° F. means that too much external heat is being applied, while a temperature of 97° F. means that the water in the hot water bag is getting cold. If this procedure is adopted, one should have little difficulty in regulating temperature in the premature infant. If hot water bottles are to be used, they must be placed between the blankets and care must be taken that a body burn does not result. It is very easy to burn the delicate skin of premature infants, if hot water bottles are allowed to remain in the same place over too long a period. After the baby has reacted and the temperature has remained between 98° and 99° F. for several hours, a quick mineral oil bath may be given, and a premature jacket applied. The jacket should fit snugly under the chin, and cover every part of the body except the face. We make a practice of keeping all premature infants in a jacket until they have attained a weight of 2500 grms. (5 lbs. 8½ ozs.). We have found these jackets very satisfactory although we do believe that they predispose to folliculitis if the baby has been allowed to become over

heated. Our premature infants receive a quick mineral oil bath every other day, and this is continued until the baby is as lusty as the normal full term baby. The daily weighing and oil bath should not consume over two minutes. We have also found it essential that a premature's temperature must be kept between 98° and 99° F. throughout its entire stay in the nursery, for sudden extremes of temperature in either direction interfere materially with progress.

#### FEEDING

That breast milk is the food of choice is agreed upon by all writers on this subject, and we are in accord with this view. We do not agree, however, with the general statement that is so frequently made, that good results cannot be expected when artificial feeding is attempted.

Due to certain policies of administration in our hospital, breast milk has been available for only those prematures vigorous enough to nurse their own mothers. It so happens that in this series of one hundred and twenty cases, only eight babies were exclusively breast fed.

If artificial feeding is to be successful it must fulfill the following requirements: (1) It must be available in concentrated form. (2) It must be easy to digest. (3) It must permit proper growth and development. (4) It must be clean. (5) It must, in so far as possible, protect against infection. It has been our experience that lactic acid milk fulfills the first four requirements most satisfactorily, and it is the chief burden of this paper to give our experience with this method of feeding. We have included in our observations on feeding, every baby that lived as long as twenty-four hours, and have excluded all babies born outside the hospital, having received any type of feeding prior to admission. We give, therefore, the results of feeding in eighty-nine instances.

There were only eight babies exclusively breast fed. The average weight of these babies was 2149 grms. (4 lbs. 11½ ozs.), and the average stay in the hospital was fourteen and five-tenths days. The average gain per day for this group of breast fed babies was thirteen and eight-tenths grms. The smallest baby in this group weight 1644 grms. (3 lbs. 10 ozs.),



and the largest baby weighed 2494 grms. (5 lbs. 8 ozs.).

There were sixty-six babies fed on a combination of breast milk and lactic acid milk. These were the babies who were allowed to nurse, and were complemented with lactic acid milk at each feeding, unless a certain amount of breast milk was obtained from the mother. A very large percentage of this group received such small amounts of breast milk that they might almost be said to have been artificially fed. Many were entirely weaned before leaving the hospital. The average weight of this group of babies was 2195 grms. (4 lbs. 13½ ozs.), and their average stay in the hospital was twenty-three and four-tenths days. The average gain per day was thirteen and three-tenths grms. The smallest baby in this group weighed 1275 grms. (2 lbs. 13 ozs.), and the largest baby weighed 2500 grms. (5 lbs. 8 ozs.).

There were eleven babies fed exclusively on lactic acid milk mixture. The average weight of these babies was 1620.1 grms. (3 lbs. 9 ozs.). The largest baby in this group weighed 2410 grms. (5 lbs. 5 ozs.), and the smallest baby weighed 1065 grms. (2 lbs. 5½ ozs.). The average stay in the hospital was forty-one days, and the average gain per day was twelve and nine-tenths grms. From the above figures it will be seen that the smallest babies in this series of one hundred and twenty cases were artificially fed.

	NUMBER OF BABIES	DAYS IN HOS- PITAL	GAIN PER DAY	AVERAGE ADMISSION WT.
BREAST FED...	8	14.5	13.8 grms.	4 lb. 11½ oz. 2,149 grms.
BREAST PLUS LACTIC ACID MILK.....	66	21.7	12.9 grms.	4 lb. 13½ oz. 2,195 grms.
LACTIC ACID MILK.....	11	41	12.9 grms.	3 lb. 9 oz. 1,620 grms.

Although we have fed lactic acid mixtures to a large number of premature infants, we can recall not a single instance where it was not well tolerated. Due to the fact that it can be fed undiluted, lactic acid milk is particularly useful in the feeding of premature infants. It has been our custom to feed premature infants at the end of twelve hours.

We start all babies at this time on lactic acid milk in suitable amounts. The larger babies are fed at intervals of four hours, and less robust babies at intervals of three hours. If the baby is sufficiently vigorous to swallow properly, it is fed with a rubber tube attached to a medicine dropper. Those babies too weak to swallow are fed by gavage, and we have found this method of feeding a life saving measure in many instances. Babies strong enough to nurse are taken to the breast at the end of thirty-six to forty-eight hours and every precaution is taken that they do not suffer from exposure at this time. If the caloric requirements are not satisfied, all nursing babies are complemented with lactic acid milk, all babies being weighed before and after each nursing. With the older methods of feeding, it was common experience to find marked fluctuation in daily weight. Since we have been using lactic acid milk this has not been our experience, the weight curve being constantly on the up grade. Of course, no baby can be fed by rule of thumb, and this is particularly true in premature infants. Each child is a problem in itself. We believe that no matter what type of artificial feeding is to be employed, the measure of success is largely dependent on a thorough understanding of that particular type of feeding.

#### PREVENTION OF INFECTION

Premature infants are particularly susceptible to infections of various sorts. Infants which can be carried along most satisfactorily, so far as growth and development are concerned, may at times succumb to an infection which in a vigorous full term baby need not cause any particular concern. Infections such as acute coryza, otitis media, impetigo, and pyelitis, may be of most serious consequence when they occur in premature infants. In our series of cases, impetigo occurred in eight instances, and no deaths were attributable to it. Congenital syphilis was diagnosed five times and three of these infants died in the hospital. Pyelitis developed in three instances with one death. Nasal diphtheria occurred in each of twins, both infants dying. There were two cases of abscess of the abdominal wall, with recovery. Furunculosis occurred once, and folliculitis four times with no serious consequences. Otitis media developed in two instances, with no serious complications. Thrush

occurred once, and acute coryza once, with recovery in both instances.

### PROGNOSIS

We have included in this report of one hundred and twenty infants, every child that was admitted to our nursery breathing. Of these one hundred and twenty infants, thirty-six

any other report, we are frank to admit that we enjoy a decided advantage, in that the majority of these babies were born in the hospital.

It is interesting to note the apparent relationship of the cause of prematurity to death in the infant. Six babies were born of mothers sufferings from placenta previa, while five of

HOSPITAL NUMBER	WEIGHT IN GRAMS	MATERNAL CONDITIONS	AGE AT DEATH	BORN	INFECTIONS AND OTHER CAUSES
69,361	1,675	Placenta Previa	Less than 24 hours	In	
67,635	2,040	Breech Delivery			
		Placenta Precia	Less than 24 hours	In	
69,394	2,310	Breech Delivery			
65,161	1,469	Syphilis	Less than 24 hours	In	Congenital Heart
		Breech Delivery	Less than 24 hours	In	Syphilis
4,217	2,228	Difficult Labor.....	Less than 24 hours	In	Asphyxia
52,673	1,905	Toxemia	Less than 24 hours	In	
54,640	1,356	Syphilis	Less than 24 hours	In	
54,910			Less than 24 hours	In	
66,336	1,145	Syphilis	86 days	Out	Nasal Diphtheria
					Cervical Abscess
					Furunculosis
66,335	1,065	Syphilis	67 days	Out	Nasal Diphtheria
67,665	2,025	Placenta Previa	7 days	In	Abscess thoracic wall
67,230	1,590		Less than 24 hours	Out	Intracranial hemorrhage
66,718	1,240		Less than 24 hours	In	Intracranial hemorrhage
66,672	1,260		117 days	Out	Congenital Anomaly of cecum, with obstruction
	Not weighed	Premature rupture of membranes	Less than 24 hours	In	Not viable
65,175		Infection of Gall- bladder	Less than 24 hours	In	
60,113	780		Less than 24 hours	In	Not viable
52,091	1,300	Toxemia	14 days	In	
60,781	848	Syphilis	Less than 24 hours	In	
51,956	805		7 weeks old on ad- mission, lived 11 days	Out	Improper feeding at home
51,472	1,049.9		4 days	Out	Improper feeding at home
51,002	2,041	Hydramnios	Less than 24 hours	In	
63,035	1,125	Toxemia	8 days	In	Pyelitis
61,256	1,580	Toxemia	Less than 24 hours	In	
52,453	1,780	Placenta Previa	9 days	In	
55,974			Less than 24 hours	In	
56,140	1,575	Toxemia	2 days	In	
57,739		Toxemia	Less than 24 hours	In	
57,957	953	Typhoid Fever	Less than 24 hours	In	
58,908	1,635	Placenta Previa	Less than 24 hours	In	
70,615	860		Less than 24 hours	In	Twin
70,614	1,355		Less than 24 hours	In	Twin
50,163	1,404	Placenta Previa	Less than 24 hours	In	
69,988	1,075	Toxemia	Less than 24 hours	In	
71,008	2,240	Toxemia	Less than 24 hours	In	
71,162	1,450	Premature Rupture Membranes	Less than 24 hours	In	

died, giving a mortality of 30 per cent. There were ninety-four infants that lived over twenty-four hours, and eighty-four of these babies were graduated from the hospital giving a mortality of 10.6 per cent. We are not ashamed of this figure, and if it is better than

the babies that died were born of luetic mothers. Toxemia was very conspicuously associated with death in the infant in eight instances. Premature rupture of the membrane occurred in the mothers of two babies dying in twenty-four hours. Other condi-



tions, maternal and otherwise, associated with the death in the infant, are shown in the mortality table. Out of eleven babies born outside of the hospital, six died, giving a mortality of 54 per cent.

We have not given this report of our experience to advocate any particular method of handling or feeding. Some of the methods employed by us were the result of necessity, others were the result of our own judgment in the matter. But we believe the results of our experience are sufficiently interesting to warrant placing this report on record.

#### DISCUSSION.

DR. F. D. WILSON, Norfolk: This paper is of great importance, because it demonstrates that it is not necessary to have elaborate equipment in order to get good results in handling premature babies. It also demonstrates the fact that it is not necessary to start the baby on very dilute milk mixtures or whey, as has been our custom in the past. The facilities, as has been noted, were very limited, but the temperature control was watched at all times and the baby was not allowed to get chilled. He was kept warm from the moment he was born and was not allowed to have a temperature fall of more than a degree or so during the first weeks of his life. Just two things are important to think of: first of all keeping the baby warm and, second, giving him an adequate amount of food. Of course, the smaller prematures are unable to nurse. If the mother's milk can be expressed manually and fed to the child, all well and good; but if the mother's milk is inadequate in quality or quantity the best possible food to give the child, in addition to the mother's milk obtainable, is sour milk. For the past three years I have been feeding all small babies, whether premature or not, sour milk. There seems to be no advantage for either of the two forms (bacterially-soured milk or milk soured by the addition of lactic acid.) They seem to gain as much on lactic acid milk as on breast milk. It is notorious that premature babies will often gain more, when they are a few months old, than normal babies. The sugar content of the lactic acid milk is brought up to approximately the sugar content of mother's milk, and that probably accounts for the greater gain in these children.

To keep them warm the doctor uses the premature jacket. I like a cape better than I do the jacket—a cape with drawstrings, because you can get it up closer around the neck. Hot water bottles should be watched very closely, because if you get them too hot they will shoot up the child's temperature to 105 or 106 or 108. I think feeding the child at intervals of two or two and a half hours, for the first few weeks of life at any rate, will give an even more satisfactory gain than shown in this series, because the capacity of the child's stomach is limited.

Now as to the prevention of infection; it is well known that these little babies are very subject to infections, particularly respiratory infections, so it is imperative that the attendants should have no respiratory infection whatever, either nurse or physician, because a simple cold in an attendant may occasionally give rise to bronchopneumonia in a small baby.

When these children are brought in from the outside they have been chilled; the temperature is down sometimes to 95 or 94, or below. I should like to have Dr. Waddell shed some light on this point.

DR. GREER BAUGHMAN, Richmond: I have listened to these papers with a great deal of interest. The reason why the premature babies get by at the University Hospital is that you have a good obstetrician. If you want to save your premature babies, you must begin by delivering them without cerebral hemorrhage. If you do not believe in episiotomy as a routine, I beg you to episiotomize for the prevention of cerebral hemorrhage. Make the opening big enough so they can just drop through without bruising their heads.

I think it is very well to get the baby oiled before wrapping him up. A little grease on the outside probably helps to protect the skin and acts like a suit of underwear.

To keep up the temperature of the body, which of course is essential, use a little electric stove. With that you can keep the temperature rather more uniform than with a hot water bottle. People that live in the country can use that method, because they also have electricity. We have found the electric stove best of all for that purpose.

Just one word about feeding. Be careful about putting premature babies to the breast! the little premature is not strong enough to suck. Don't think that because it is at the breast it is getting enough food; weigh it before and after nursing to be sure that it gets enough.

I disagree with the last speaker in that I think the more premature the greater the interval of nursing. I would rather have an ounce of food well digested every four hours than an ounce poorly digested every two hours.

We have found that acid milk will make the premature grow where their own mothers' milk will not. It seems to me that the premature babies fed on acid milk do better than those babies that are fed upon pumped breast milk. The babies that are able to nurse their mothers are usually not very premature.

DR. LAWRENCE T. ROYSTER, University: I cannot refrain from talking on this subject so dear to my heart. This work was done in our service at the University of Virginia hospital. There are one or two points I want to stress. The first was brought out in the paper, but I want to stress it a little more. A premature child must not be allowed to have a drop in temperature. Some of these were brought into the hospital when for some hours we could not register the temperature with any instrument in the hospital. Calculating the temperature as best we could, we judged it was about 91. Dr. Blackfan says he never had raised a child with a temperature as low as 90. If the mother is not so awfully bad off as for you to anticipate death immediately, let the mother look after herself and take care of that premature. As to whether they are worth saving; I think they are, absolutely.

The premature child's growth urge is greater than the normal child's. Foreign protein stimulates the growth urge more than the normal food. I hate to disagree with so many eminent men, but the premature child does better on sour milk than on pumped mother's milk.

I have tried long intervals of feeding and short intervals, and I believe most of them do better on four hours than three hours. I can remember way back yonder when we diluted the mother's milk for prematures or gave whey. Then the short interval was necessary, but today, with the concentrated feed-

ing and the concentrated protein, the longer interval is better; and these babies do better and there is steadier gain on the four-hour interval.

I want to say just one more thing. I am the proudest man on the face of the earth to be in a department that can give such a record as Dr. Waddell has given today.

### NON-DRAINING PURULENT OTITIS A SOURCE OF DANGER TO THE HEART IN CHILDREN.\*

By LITTLETON DAVIS, M. D., Roanoke, Va.

While statistics now show many diseases, notably the contagious diseases and tuberculosis, on the decrease, heart diseases and deaths therefrom are apparently on the up-grade. Certainly, it seems to me that I am discovering a far greater number of damaged hearts in children than formerly. Possibly because of our increased knowledge of children's diseases we are now more on the alert for carditis than heretofore.

I shall doubtless bring out nothing new. However, any point of attack aimed at reducing this number I feel is amply justified.

Granted that heart disease or endocarditis is or has been an infectious process, we are almost compelled to admit that such infection must enter at some more remote point and is carried by lymph and blood stream to this site. Supposing this to be the case, we have two methods by which such infection may take place: 1. An acute overwhelming infection throwing large quantities of bacteria into the heart's blood; or, 2. A closed non-draining focus throwing a small amount of infection into the blood over a longer period of time. In children at least, the latter method of infection has held first place for some time and hence the intensive search for foci in the teeth, tonsils, and sinuses with indifferent therapeutic results. It seems to me that the danger to the heart lies not so much in the fact that these foci may be present about the head and neck, but rather whether such foci are afforded easy natural drainage, or are susceptible of prompt discovery and good artificial drainage.

Where pus can readily discharge outward, as in gum boils or tonsil crypts, from an ear drum or sinus opening provided this takes place, there is little danger to the heart and lungs. On the other hand, in bone sinuses having larger cavities draining through small apertures or often not draining at all, the best

condition for a heart infection is maintained, since there is no place for it to go save directly through the lymph stream into the subclavian, thence to the lungs and heart. In the mastoid antrum and middle ear in infants and young children the above conditions are most admirably fulfilled.

We are frequently seeing children under five and often from one to two years of age with damaged hearts. As many of these are discovered accidentally, many heart cases in later life can possibly be accounted for in this way.

The most common and also the most neglected of all infections in children of this age affecting a bone sinus is a purulent otitis media. It offers the poorest drainage compared to its frequency of infection of any upper air sinus. The middle ear is infected from general or specific infections directly through the tubes or secondarily by coughing up of infectious material from bronchi or lungs as in whooping cough and pneumonia.

From Fall to Spring this is the most common illness of children. It is often treated by neglect and household remedies. Far too often it is neglected by physicians too, being passed off as an indigestion or cold or "flu". We do not begin to realize what may be the far reaching bad effects of neglecting these infections.

I am frank to say that I think both the laity and we have long neglected what is a common source of danger to the heart and lungs in those children having an earache and a temporary fever. Pain is only an early symptom, so is much fever. Fortunately, in some of the neglected cases the ear drum ruptures with a discharge of pus. Just as often, however, it only oozes through a minute opening or does not open at all, the pus standing for weeks in a closed cavity, thus offering the best opportunity for pulmonary and heart infection. There is only a short chain of deep cervical lymph nodes between this infection and the heart, while the valve leaves and numerous cordae tendinae structures of this organ act as a kind of seine or net to catch what may have passed the cervical and bronchial lymph nodes.

In neglected and non-draining purulent otitis the child is usually restless at night, is pale, has a poor appetite, with usually slight evening fever and often no fever at all. Frequently, a bronchitis is associated or the child

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gives history of having had bronchitis or pneumonia or a contagious disease. With the above symptoms a systolic apex heart murmur is sometimes present.

The appearance of the drum membrane varies according to several factors: 1. The length of time the infection has been present; 2. Whether the drum has previously opened and reclosed; or 3. Whether partial drainage is being established through the tubes.

In old non-draining otitis the drum is a dull grayish or reddish yellow, like a half-done biscuit with rounded edges and depressed center. If the drum has previously been oozing pus, it will have to be brushed clean, when it will appear a bright red and bulging. If no outward drainage has been afforded, although forward drainage is being established, the color is the same as in the first case excepting that the drum is becoming wrinkled from a release of pressure after bulging.

Purulent otitis has since the advent of influenza become far more frequent than formerly. The causes present in the order named are common colds, influenza, whooping cough, measles, scarlet fever, and pneumonia.

In regard to the heart murmurs that occur with purulent otitis and with the above named infections in which an otitis is so frequently present, I am becoming more and more skeptical of considering them as merely anemic or functional in character, but rather as a result of a low grade secondary heart infection, this later in itself being sufficient to keep up the anemia of the patient rather than being secondary thereto.

In going over my records of contagious diseases, notably influenza and scarlet fever, in which cases heart murmurs are so frequent, I was impressed with the large number of such cases also having had a purulent otitis. At the time, however, I did not check up the relation between the two.

The incidence of heart infections in children apparently following otitis and pulmonary infections is sufficiently large, I believe, to bear strongly on the large number of damaged hearts seen in later life and to point to one way at least of reducing that number. That there is a peculiar lack of immunity in some families to the so-called rheumatic heart infection, or a low grade contagion which amounts to the same thing, is illustrated in two families that I recall, one in which there is a boy of

eight with a rheumatic mitral lesion, a girl of six with the same ushered in with chorea, and a baby of three months dying of the same lesion. In the other family is a child of three with chorea (no heart lesion) following otitis, a boy of ten years with a heart lesion, and the father about fifty with a recently developed carditis.

There are many other sources about the head and throat which may become non-draining foci, and therefore, perhaps of equal danger. They should receive the proper attention. Purulent otitis, however, is the most common and the most frequently neglected of all such infections. No physician should haphazardly undertake the responsibility of treating these ear infections in children without the proper knowledge or the proper equipment for doing so, and yet this is an almost daily occurrence.

The merely red drum membrane should not be opened, as a rule, even if bulging slightly under five days unless pain is constant and unrelieved by other methods. An otitis that is draining through the tube can do with watchful waiting. All those previously described, however, as not draining should have wide drainage through the drum, not a puncture, and it is just as important to keep the opening open. Vacuum suction or any other treatment designed to facilitate drainage may help. Any other treatment is of secondary importance to outward drainage and the prevention of other infections going in. Adenoids, of course, must be removed.

An important point in the prevention of the remote pulmonary or heart infections is to examine the ears always in from one week to two weeks after an earache, or after the contagious diseases, especially influenza. If parents can become educated to this and if we will equip ourselves properly and take the time and patience which these little patients require, I believe that many crippled hearts can be avoided for truly here "A stitch in time saves nine."

The following are a few illustrative cases:

CASE 1.—C. C., boy, eighteen months old, had earache which mother treated twice during winter. Had discharging ear one week before present attack. Is pale, has slight fever, and soft systolic murmur, oozing pus from one drum, other one bulging under an old infection. Both incised with good drainage and closure in about three weeks. Child

continued pale for two months, and after two years' standing, heart murmur disappeared, and child seems quite normal.

CASE 2.—J. L., two years old, supposed to have had "flu" in January, 1925. Had cough for a month with fever at times, slept poorly, is now pale, has cough, and a general bronchitis with a soft systolic murmur at apex. No fever, ear drums dull, grayish yellow, bulging, no recent pain. Both ears contained old thick, creamy pus. Bronchitis and cough cleared in three days, ears drained about two weeks. Child is still pale and shows heart lesion now two and one-half years later.

CASE 3.—Boy, fifteen months old, bottle fed rachitic baby. Had cold with otitis in March, 1927, and as otitis was apparently clearing up was discharged three days later. In May, child brought in for dieting because of poor appetite, and although the child had been on cod liver oil and proper diet with plenty of sunshine, he was unnaturally pale. A soft murmur was present which now in October is pronounced and is undoubtedly a definite heart lesion.

CASE 4.—Boy, aged eight, gives history of several ear infections at three and four years of age, with prolonged discharges and paracentesis at one time. A mitral lesion was found while going over lungs at beginning of whooping cough. This persisted for two years when boy contracted scarlet fever and an otitis purulenta which later was drained at once. Child made good recovery, but still carries his heart lesion now at twelve years of age.

CASE 5.—Girl, aged three, gives history of purulent otitis at one to two years of age. In January, 1924, attack of arthritis with mitral regurgitation in which heart lesion appears to be an old one. One year later, in January, 1925, child developed a cold with slight fever lasting about three days, during which time one ear drum became slightly reddened. About three weeks later a slight aortic regurgitation was noted. The child is now six years old and is going steadily downward. At no time has there been a sore throat or obvious pus in the tonsils or other demonstrable focus or site of infection or a contagious disease.

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#### DISCUSSION.

DR. H. S. HEDGES, Charlottesville: I am glad of an opportunity to commend this paper to the general practitioner. I do not know any branch of children's diseases that I think is more sadly neg-

lected than the diseases of the ear, and I think one of the most dangerous drums to get in a child is that self-same yellowish drum that is not red and from which there is no definite discharge. I think the reason why the general practitioner does not take care of these ears better is because he cannot see them. A man not trained in ear work does not see them well without an otoscope. The electrically lighted otoscope has opened up a whole new field. If you men who have heard this paper this afternoon will provide yourselves with otoscopes, you will find a whole new field opened up to you.

Because the child is not crying, because it has no temperature, does not mean that inflammation is not there. The otoscope is so small, you have the light where you need it, and the electrically lighted otoscope is so easy to work with that there is no excuse at least for not making a diagnosis. I shall go one step further and say there is no excuse for a man in general practice, far away from aurists, not to open ears himself. With a little practice he can easily do it and save a vast deal of trouble and suffering for his patients.

DR. DAVIS, closing the discussion: I thought while writing this paper, it should be of especial interest to physicians in the country who, though far removed from specialists, can, with a good direct lighting otoscope, so acquaint themselves with the appearance of the drum membrane as to diagnose and drain these infections when needed. It is often surprising how quickly a localized bronchitis or the signs of what is apparently a beginning pneumonia will clear up after a paracentesis with free discharge of pus from infected ears. Entirely too many of these infections are at present being overlooked, and I believe many of the lower respiratory and some heart infections can be avoided by taking care of the ear infections at the proper time.

### BRONCHOGRAMS IN THE STUDY OF PULMONARY DISEASE.\*

By DEAN B. COLE, M. D.,  
and  
L. J. WHITEHEAD, M. D.,  
Richmond, Va.

Bronchography was attempted by Chevalier Jackson in 1905. Since this trial several substances have been used as contrast media. In 1922 Sicard and Forestier introduced iodized oil, which was named lipiodol, into the tracheobronchial tree. Lipiodol is a preparation of poppyseed oil containing 40 per cent iodine. It possesses the unique property of being opaque to X-ray, and thus may be used to delineate the trachea, bronchi and finer divisions of the lung parenchyma. The time of elimination varies. It usually disappears within three weeks. It has, however, been observed in the lung sixty-five days after injection. In bronchiectasis it gives a characteristic picture and shows the typical clubbing of the bronchi. In diseases of the trachea and bronchi, for example, bronchial fistula, the diagnosis is easily made following the introduc-

\*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.



tion of iodized oil. In chronic bronchitis and some cases of lung abscess, diagnosis is more difficult. Its use is limited in acute abscess of the lung; in these cases its injection may do harm. It has a very limited use in pulmonary tuberculosis, but in certain cases with questionable cavities it is very helpful. We have found it particularly helpful in differentiating between small localized pneumothorax and cavity. However, should the cavity be filled, the use of lipiodol is rather unsatisfactory. An effort should be made to empty this before the injection is done. Unless there is a very definite indication for its use, we believe lipiodol should never be used in acute or progressive tuberculosis. The information gained should offset any damage that might be caused by the spread of the existing tuberculosis. It is most helpful following thoracoplasty. In this way, as in no other, one can determine accurately the amount of collapse and whether or not there are still existing uncollapsed pockets.

Of the methods of introduction of the oil, we prefer and recommend the supraglottic or transglottic method. We prefer this method as it is comparatively simple, without danger, and the results are entirely satisfactory. The soft palate and base of tongue are swabbed with 10 per cent cocaine solution and trachea is sprayed with a 1 per cent solution. Three to five minutes later, with the patient seated, facing the operator, a medium sized catheter, which is attached to a metal syringe containing 20 c.c. warm iodized oil, is passed through the larynx into the trachea. The oil is then slowly injected with the patient inclined towards the affected side or the side on which it is desired to introduce the oil. The catheter should be long enough to reach just below the vocal cords but short enough not to be cumbersome. A laryngeal mirror is used, thus making it possible to see the oil empty into the trachea, and the possibility of injecting oil into the esophagus is avoided. The position of the patient is important as it is in this way that the distribution of the oil is controlled.

E. Archibald and A. L. Brown called attention to many dangers in the use of lipiodol. They mention the possibility of local sepsis, laryngeal edema, absorption of oil through the stomach, spreading the existing infection,

and the possibility of iodism. There have been many series of cases, covering hundreds of injections, with but few complications or untoward symptoms as the result.

In our series of more than one hundred injections, we have had no fatalities and have seen but one patient showing any evidence of reaction. In this case we were not certain that the symptoms were due to any manipulation or reaction from the oil. Great care should be exercised in the use of lipiodol. This drug is of unquestionable value in the diagnosis and treatment of lung disease and one should not be deterred from its use by the occasional accident that has been reported.

#### *Professional Building.*

#### DISCUSSION.

DR. GARNETT NELSON, Richmond: I am sorry that the slides did not show up a little better. I have had the good fortune to see them before, and they show that the work Dr. Cole is doing in making these bronchograms is quite as good as any being done anywhere.

The paper Dr. Cole presented is so condensed, there is so much in it, that we cannot stop to discuss it to get out of it what we want and shall have to wait until it is published.

I wish to commend Dr. Cole for his enterprise and industry in learning how to do these things and teaching us how to do them here in Richmond. For some reason we were not doing bronchograms, did not know how or were afraid to do them, until he taught us.

Another thing I want to speak of is the simplicity of this work. Of course, it cannot be done carelessly, but information can be obtained with bronchograms that cannot be obtained in any other way. It is not a very difficult thing; the technic of getting the catheter down is easily gained; and it is a guide to cures that cannot be otherwise accomplished.

DR. COLE, closing the discussion: There is one point Dr. Nelson brought out, and that is the question of the ease of using the lipiodol. It is a simple sort of procedure. There are two things that are necessary. One is that you know how to use a laryngeal mirror, and the other is that you do not become frightened too easily. Sometimes these patients will get a cocaine poisoning. You will have to stretch them out, but you can still give the lipiodol.

A great number of these were done for treatment purposes. These the nose and throat men have seen; they cough all over you. These it is necessary to get thoroughly cocaineized before injecting the lipiodol.

Another point, you should get your X-ray fairly promptly. The patients become frightened and breathe very rapidly, and sometimes it is necessary to get two or three sets of films.

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We worry and fret trying to make life do what we think it ought to do. Oftentimes we'd gain greater happiness if we learned to be more non-resistant—if we learned to accept cheerfully what comes.—*Selected.*

# **TULAREMIA IN VIRGINIA.\*** **With Report of Three Cases.**

By STAIGE D. BLACKFORD, B. S., M. D., University. Va.  
and  
W. E. BRAY, B. A., M. D., University. Va.

The first cases of tularemia known to have occurred in Virginia were in 1920 in Rockbridge and Augusta Counties. However, the

County in 1924. To date there are thirty-nine cases in which records are available. A tabulation of these cases is presented in Table I. Undoubtedly other cases have been recognized, but records on these were not obtainable.

The distribution of the infection has been fairly uniform throughout the state with per-

TABLE I  
TABULATION OF CASES OF TULAREMIA IN VIRGINIA  
(With the assistance of Dr. H. G. Grant, State Epidemiologist, and Dr. Edward Francis, of the United States Public Health Service.)

No.	YEAR OF OCCURRENCE	COUNTY OF OCCURRENCE	ATTENDING PHYSICIAN	AGGLUTINATION		RESULT	REMARKS
				TITRE	DATE		
1	1920	Rockbridge	C. H. Davidson	1.40	1927	Well	Clinical diagnosis only
2	1920	Rockbridge	C. H. Davidson	1.20	1927	Well	
3	1920	Augusta	J. E. Womack	1.80	1927	Well	
4	1921	Augusta	J. E. Womack			Well	
5	1922	Augusta	A. L. Tynes	1.160	1927	Well	
6	1922	Augusta	J. E. Womack	1.80	1925	Well	First case recognized J. A. M. A., V. xxxiv 1925 p. 1019-20
7	1923	Cumberland	O. C. Brunk	1.240	1923	Well	
8	1924	Chesterfield	T. S. Shelton	Pos.	1924	Well	U. S. Public Health Reports, Feb. 26, 1926
9	1924	Augusta	J. E. Womack	1.160	?	Well	
10	1925	Lee	Freese	Pos.	1925	Well	
11	1925	Lee	Lake			Fatal	
12	1925	Lee	and			Fatal	
13	1925	Lee	Francis			Fatal	
14	1925	Rockbridge	C. H. Davidson	1.80	1927	Well	
15	1925	Surry	D. Vanderhoof	1.1280	1926	Well	
16	1926	Henrico	C. I. Sease	1.80	1926	Well	
17	1926	Essex	F. B. Wilson	1.640	1927	Well	
18	1927	Pittsylvania	J. C. Anderson	1.160	1927	Well	Reported herewith Reported herewith See Case 20, above. Autopsied
19	1927	Albemarle	D. O. Nichols	1.160	1928	Well	
20	1927	Orange	J. C. Flippin	1.640	1927	Well	
21	1927	Orange	C. E. Riggs	1.10	1927	Fatal	
22	1927	Orange	Johns Hopkine Hospital	Pos.	1927	Well	Data inadequate. ?? diagnosis Va. Medical Monthly, May, 1928
23	1927	Rockingham	J. E. Wine	1.2560	1927	Well	
24	1927	Rockingham	J. E. Wine	1.640	1927	Well	
25	1927	Madison	L. Taliaferro	1.1280	1927	Fatal	
26	1927	Fauquier	W. C. Payne	1.20	1927	Fatal ?	Reported herewith
27	1927	Elizabeth City	H. G. Longaker	1.160	1928	Well	
28	1927	Henrico	Va. Epidemiology Dept.	1.320	1927	Well	
29	1927	Charlotte	J. B. Bailey	1.640	1928	Well	
30	1927	Montgomery	G. G. Howery	1.1280	1928	Well	Reported herewith
31	1927	Montgomery	G. G. Howery	1.1280	1928	Well	
32	1927	Montgomery	J. G. Davis, Jr.	1.1280	1928	Well	
33	1928	Culpeper	J. R. Boldridge	1.800	1928	Well	
34	1928	Dinwiddie	S. Newman	1.5120	1928	Well	Data incomplete. Agglutination by U. S. Hygienic Laboratory
35	1928	Albemarle	S. D. Blackford	1.160	1928	Well	
36	1928	Pittsylvania	J. C. Anderson	1.5120	1928	Recover'g	
37	1928	Montgomery	G. G. Howery	1.2560	1928	Well	
38	?	Arlington	J. H. Walton	Pos.	?	?	
39	?	Arlington	J. H. Walton	Pos.	?	?	

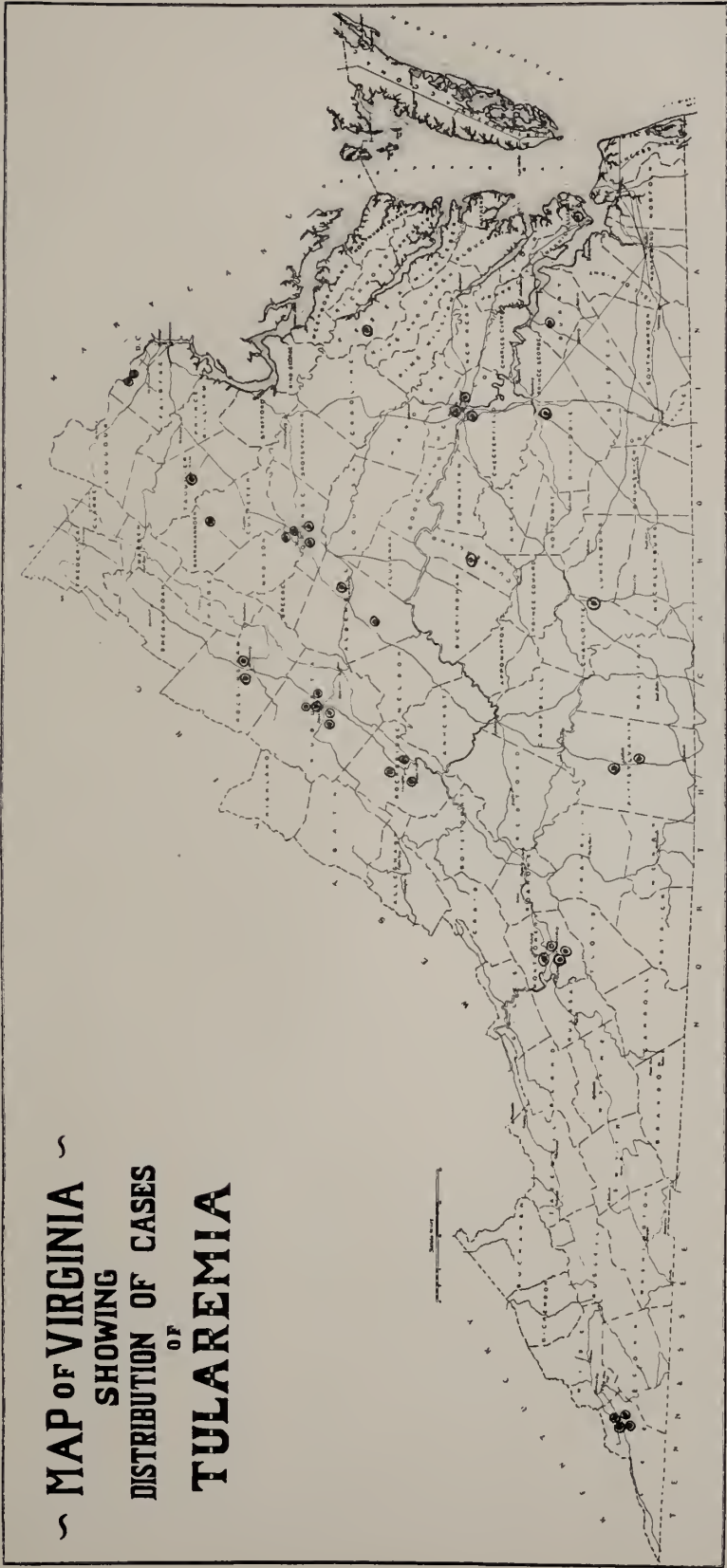
earliest case recognized from this state was in Cumberland County in 1923. The first case reported in the literature was in Chesterfield

haps a slight predominance in the Piedmont area. Map shows the distribution in graphic form. The thirty-nine cases reported herewith have occurred in twenty counties, as shown in Table II. All of the infections, in which the source has been definitely identi-

\*From the Department of Internal Medicine and the Clinical Laboratory, University of Virginia Hospital.

Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.





fied, have been from rabbits. Case II reported herewith is a possible exception. Practically all of the cases have occurred from handling or dressing rabbits and have been of the ulceroglandular type. The mortality rate in thirty-five cases of known termination is 14 per cent.

TABLE II  
TABULATION BY COUNTIES OF CASES OCCURRING  
IN THE STATE

Augusta.....	5	Charlotte.....	1
Lee.....	4	Chesterfield.....	1
Montgomery.....	4	Culpeper.....	1
Orange.....	3	Cumberland.....	1
Rockbridge.....	3	Dinwiddie.....	1
Albemarle.....	2	Elizabeth City.....	1
Arlington.....	2	Essex.....	1
Henrico.....	2	Fauquier.....	1
Pittsylvania.....	2	Madison.....	1
Rockingham.....	2	Surry.....	1

Both the occurrence and recognition of the disease are apparently increasing, as is demonstrated by Table III.

TABLE III  
TABULATION OF CASES WITH REGARD TO YEAR OF  
OCCURRENCE AND YEAR OF RECOGNITION BY  
AGGLUTINATION

YEAR OF OCCURRENCE	NUMBER OCCURRED	NUMBER RECOGNIZED BY AGGLU- TINATION	AGGLUTINA- TION NOT DONE
1920	3	0	
1921	1	0	
1922	2	0	
1923	1	1	
1924	2	1	
1925	6	2	
1926	2	2	
1927	15	15	
1928	5	11	
?	2		7

The three following cases have occurred in a general hospital within less than a year. They were apparently sporadic.

CASE I

Mr. M. G. F., of Orange, Va., white, aged sixty-three, banker, entered the University of Virginia Hospital on November 27, 1927, under the care of Dr. J. C. Flippin, with an admission diagnosis of "influenza". The onset of the illness dated to ten days before admission at which time the patient developed a severe "cold". He continued to feel badly and five days prior to admission was unable to go to his office. His symptoms consisted of marked malaise and prostration, cough with expectoration, and temperature. He continued to grow worse, became delirious and on the

night before admission to the hospital fell, receiving cuts on his head and "brush burns" on his shins.

Upon admission he was disoriented and mildly delirious and his tongue was heavily coated. Chest examination showed scattered patches of fine rales in the back of the lungs, chiefly under the left scapula. Leucocyte count was 11,000. The temperature for the first two or three days in the hospital ranged from 102 to 104 degrees. It was thought at this time that the patient's condition was broncho-pneumonia complicating an influenzal attack. After further examination neither the signs nor symptoms of pneumonia were satisfying and X-ray plates showed no areas of consolidation.

About one week after admission it was noted that the skin abrasions received from the fall before admission had all practically healed except a place on the middle finger of the right hand and on the little finger of the left hand. These abrasions, which were insignificant at the time of admission, became worse, assumed a bluish hue, and seemed to have an effusion under the discolored skin. It was also noted that the right epitrochlear gland was enlarged to about the size of a butterbean and there was a distinct enlargement of the right axillary glands. The left axillary glands were moderately enlarged and the left epitrochlear was about the size of a split pea.

At about this time news came that the patient's brother, who had been rabbit hunting on November 16th, was ill in Washington and suspected of having tularemia. Both brothers and a nephew had dressed rabbits on November 17th. Agglutination tests of B. tularense on December 4th showed a positive reaction in dilution 1:10 and a partially positive reaction in dilution 1:20. On December 10th, agglutination was repeated and was positive in dilutions as high as 1:160. On December 17th, a positive agglutination in dilutions up to 1:640 was obtained. At the time of discharge on January 2nd, the agglutination was positive only up to 1:160. The patient's condition was good at the time of discharge and subsequent reports on his condition have shown a satisfactory recovery.

The patient's brother, whose case has been reported elsewhere, died and an autopsy showed lesions of tularemia. The nephew had a mild infection, the diagnosis of tularemia



being made in the Johns Hopkins Hospital laboratory.

### CASE II

Mr. C. T., aged thirty-four, farmer, of Boyd's Tavern, Va., was admitted to the University of Virginia Hospital on July 25, 1927, complaining of headache.

About ten days prior to admission the patient had begun to feel drowsy and weak, but was not sick enough to go to bed. Six days before admission he developed a severe diarrhoea and the day following a severe headache with moderate polyuria. On admission he appeared sick, but was able to walk. Physical examination was essentially negative and no glandular enlargement was noted. Admission temperature was 104.2. During the patient's six weeks in the hospital he ran a temperature and pulse curve typical of typhoid fever, but did not appear as ill as would have been expected. Fifteen days after admission the patient developed a severe left sided pleurisy which cleared up in a day or so. Repeated Widal tests, blood, stool and urine cultures were negative for typhoid fever. In spite of the negative laboratory findings, however, the patient was discharged on September 7th with a diagnosis of typhoid fever, although such a diagnosis seemed by no means satisfactory.

Five months later (after Case 1 above had been in the hospital), Dr. D. O. Nichols became suspicious that the patient might have had tularemia and he asked the patient to return for further study. At this time the patient, who was in perfect health, showed a positive agglutination reaction for *B. tularensis* with dilutions up to 1:160. The closest questioning, however, failed to reveal any history of the patient's having handled or eaten rabbits prior to his first admission. He remembered, however, having been bitten frequently by ticks. In view of the positive tularemia agglutination and the absence of satisfactory evidence of typhoid infection it seems that a diagnosis of tularemia, perhaps of the typhoidal type, is warranted in this case.

### CASE III

E. F., colored, aged fifty-four, farmer, entered the Out-Patient Department of the University of Virginia Hospital on June 5th, complaining of weakness of three weeks' duration. The initial history revealed no further complaint than the weakness of sudden onset. On

physical examination it was found that the patient had a round open ulcer one centimeter in diameter with soft edges, roughened base with serous exudate, and with slight swelling of surrounding tissues, on the thumb of his right hand. The right epitrochlear gland was easily palpable and there was an enlarged gland in the right axilla about 5 cm. in diameter. The patient said that this sore had occurred about one week previously and that he had noted the enlarged gland at about the same time. However, since neither gave him much trouble he had ignored them. Direct questioning in regard to contact with rabbits failed at first to reveal any evidence of rabbit infection. However, his employer remembered that



E. F.—Tularemia: Primary lesion, Right Thumb.

the patient had told him about five weeks previously that he had skinned a rabbit caught by his dog. The patient had not eaten the rabbit. The initial differential diagnosis lay between tularemic ulcer and the possibility of a chancre. The axillary gland was aspirated and 2 c.c. of rather thin greenish pus was easily obtained. The patient was admitted to the hospital with a diagnosis of tularemia. Admission temperature was normal, leucocytes 5,000. Agglutination reaction was positive in dilutions up to 1:160 with *B. tularensis*. The patient remained in the hospital for one week during which time his highest temperature was 100.6. At the time of his discharge from the hospital, the thumb ulcer was healing nicely but the axillary gland had not decreased in size. The patient was feeling well. One week following his discharge the axillary gland became slightly sore and was incised, a small

amount of odorless yellow pus being evacuated. The gland continued to drain but the tenderness disappeared. The thumb lesion had entirely disappeared within two weeks after discharge. By request, the patient re-entered the hospital on July 6th for a re-examination. At this time a healed scar on the right hand was noted, and the epitrochlear gland had disappeared but the right axillary gland still showed slight suppuration. Agglutination tests showed a positive agglutination up to 1:160 with *B. tularensis*. The patient's general health had continued to improve since the time of discharge.

#### SUMMARY

1. Sufficient cases of tularemia have been reported throughout the state to make the disease of importance in Virginia. Its recognition and probably also its incidence are increasing in the state.

2. The diagnosis may be suspected from history or physical examination, and all cases of protracted fevers of unknown origin should be tested for tularemia by the agglutination reaction.

**AUTHOR'S NOTE:**—Between the time of writing the above and its publication, three additional cases of tularemia have been recognized at the University of Virginia Hospital. The diagnosis was confirmed in all cases by the agglutination reaction.

#### DISCUSSION.

DR. W. A. BRUMFIELD, Farmville: I had the pleasure of visiting a child-health demonstration in Rutherford County, Tenn., not many months ago, and I found more cases of tularemia had been reported in that county than in any other county in the United States and that most of the cases had been picked up in the medical inspection of school children in children who had not gone to physicians and would not have been diagnosed except for this medical public health work. In most of these cases there was no history of exposure to rabbits in any way. I happened to see one little girl about six who walked into the clinic. She was not sick in any way but had a good many glands enlarged. There was a small sore on the back, a kind of ulcer; and the clinician said that clinically it was very much like those cases they had found in the medical inspection of school children. That case I have not heard from since, but the doctor was quite satisfied that it was a case of tularemia. So it is quite probable that this disease is much more common than we have any figures to show, because it is quite likely that many of the minor cases do not go to physicians at all but just go on and have the bumps and get over it after a while and do not consult a doctor.

DR. G. FOARD MCGINNES, State Department of Health, Richmond: I want to thank Dr. Blackford for presenting the paper, as I feel that the State Department of Health was somewhat responsible for it. We were very anxious to bring this subject be-

fore the medical profession of Virginia, because we feel that tularemia is important in the State of Virginia, and we would like to have the doctors review the subject and familiarize themselves with the diagnosis.

I want to take up my discussion from the laboratory standpoint. There are a number of diseases that may be confused with tularemia. We have a number of unusual diseases coming up in Virginia, such as tularemia, Malta fever, typhus fever, etc. Through the summer the laboratory of the State Department of Health has been running all negative typhoids through the laboratory tests for Malta fever and typhus fever. We have in this way picked up two cases of Malta fever and several cases of typhus fever. We want to cooperate with the physicians of the state in picking up these unusual diseases; therefore, during the fall and winter we are going to run all negative typhoid specimens for tularemia. I want you to feel that the State Department of Health is anxious to cooperate with you in making the diagnosis of these diseases and that we feel they are important. The signs and symptoms in some of the cases are practically the same as in a septicemia and in others practically the same as in typhoid. In all suspicious cases we shall be glad to have you send blood to the laboratory, and we will run the test for you.

#### THE RATIONAL USE OF DIGITALIS.\*

By BLANTON P. SEWARD, M. D., Roanoke, Va.

Digitalis stands pre-eminent among drugs employed in the treatment of heart disease. For a century following its introduction by William Withering, in 1785, little was known about the drug except that it slowed the pulse, promoted diuresis, and, when a sufficient quantity had been taken, caused nausea, vomiting and diarrhea. The empirical use of the drug during that period gave rise to erroneous impressions concerning its action. Within the past fifty years, observations carried out on the effects of digitalis in cardiac disturbances, and recent clinical studies with graphic methods, have given us a more precise knowledge of the drug than we formerly possessed, yet confusion exists concerning its administration.

Drug therapy, one of the measures employed in the treatment of heart failure, is concerned chiefly with the restoration of the heart's efficiency. Digitalis is the most potent drug we have for increasing the effectiveness of the heart muscle. The judicious use of digitalis will usually restore the heart's efficiency and relieve the patient's symptoms, but the effect of the drug does not cease when compensation has been re-established. In many cases its further use is essential for the maintenance of circulatory efficiency and for the prevention of recurrences of failure.

\*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.



The results to be derived from the intelligent use of digitalis depend upon a knowledge of its possibilities and limitations. Innumerable investigations upon its pharmacologic action and therapeutic utilization have taught us that the action of the drug is constant, and that the varying results obtained are expressions of differing factors present in various cases. The rate of absorption and elimination of digitalis, the amount required to produce a full therapeutic effect, the potential dangers from its administration, and the underlying cause of the altered cardiac function, which indicates its use, should be borne in mind when prescribing the drug.

#### ABSORPTION AND ELIMINATION

Newer methods of administration have shown that digitalis is absorbed from the gastro-intestinal tract more quickly than was formerly stated; therefore, definite influence may be evidenced on the heart in six to twelve hours, and a patient may be fully digitalized in twenty-four hours.

Whether the persistent effects of digitalis are due to slow elimination or to retention of the drug in the body tissues we do not know, although it is thought that the digitalis substances are gradually destroyed in the body with probably some elimination by the kidneys. Pardee<sup>1</sup> found the average daily rate of disappearance to be the equivalent of twenty-two minims of the tincture regardless of the amount of digitalis in the body, the size of the dose at the time vomiting occurred, the rapidity of administration, the degree of heart failure, the body weight of the patient or the susceptibility of the patient to the drug. While twenty-two minims represented the average rate of disappearance, variations of thirty-eight per cent below to seventy-one per cent above the average were found.

#### DOSAGE

In determining the dosage it is not only desirable to know the minimum amount that might be expected to give results, but also to have some idea of how much the patient may take without suffering toxic effects. The average amount of digitalis required to produce therapeutic action after oral administration is determined on the basis of the body weight of the patient and the biological activity of the drug as measured in the cat unit. Two minims per pound may be considered as the

average total dose for a high grade tincture. There is, however, a striking variation in the quantity necessary to induce digitalization in different individuals, some requiring fifty per cent more than the average dose, others requiring twenty to thirty per cent less. The variability in dosage, in the rate of absorption and in the time of disappearance in different individuals complicate digitalis medication and demand careful consideration.

The rapidity with which digitalization should be induced depends upon the specific needs of the individual case. One of three general plans of digitalizing may be employed. The extremely ill patient who has not been treated may be given the drug on a basis of one cat unit or .15 c.c. for each pound of body weight.<sup>2</sup> When the required amount of digitalis has been calculated for the patient, one-half of the total amount is administered at the first dose, one-third to one-fourth of the total amount is given six hours later. Thereafter, smaller doses of one-sixth to one-tenth of the calculated requirement may be given every six hours until digitalization is secured. By this method of administration the full effects of the drug are generally obtained in about twenty-four hours. The massive dose method is not practical except in selected hospital cases.

The patient whose symptoms are urgent may be given one-fourth of the total dose, or one dram of the tincture, every six hours for four doses, then about one-half a dram at intervals of four hours during the day until digitalization is complete, which is usually in thirty-six to forty-eight hours. Small doses of twenty to forty minims of the tincture every four hours until the effects are observed meet the requirements of the majority of patients, especially those outside of the hospital. The small dose method will permit a more ready detection of the pharmacologic action of digitalis and the early toxic symptoms it may cause.

#### TOXIC EFFECTS

In recent years many prominent clinicians have taught that insufficient dosage is the most important factor in explaining the poor results obtained from digitalis therapy. This emphasis has prompted an empiric administration of the drug without a realization of its possible toxic action. Beneficial results are

not usually obtained until digitalis is given to the point of physiological tolerance and there is little margin between the therapeutic and toxic stages. Overdosage results in excessive stimulation of the vagi, an increased irritability of the heart muscle, and disturbances in cardiac rhythm associated with irregularities in impulse formation. While these are the accepted symptoms and signs of digitalis intoxication, toxic action on the heart muscle may occur without nausea or vomiting. Laten<sup>3</sup> and Porter<sup>4</sup> have reported patients with myocardial disease in whom doses well below the calculated basal requirements produced toxic arrhythmia detected only by the electrocardiograph. Digitalis often produces serious injury to the heart muscle and should never be prescribed carelessly.

When considering the indications for the use of digitalis the rapidity of the heart beat should not be the only criterion for its administration. Since it has been so generally believed that the beneficial results of digitalis are due to its power of slowing the heart rate, it has frequently been given in cases of rapidly beating hearts without considering whether or not the rapidity of the beat is a physiological response to temperature, toxins or invasion by organisms. A classification of rapid hearts will be helpful in determining whether beneficial results may be expected from digitalis in tachycardias.

Rapid hearts may be divided into two groups, namely, extracardiac, where the exciting cause is outside the heart, and intracardiac, where the exciting cause is within the heart. Examples of extracardiac rapidity are furnished by febrile and hyperthyroid states. In these conditions metabolism is increased, demanding a greater blood flow through all organs. Stimuli are conveyed to the heart through the sympathetic system and an increased rate results. The slowing effect of digitalis is not obtainable in these conditions because increased stimulation of the sympathetics in response to this abnormal demand is more powerful than any corrective effect obtained from any known drug.

In cases of extracardiac rapidity it may be necessary to support or improve the circulation. Acute or long standing infections in the body, or toxemia from hyperthyroid activity may embarrass the heart muscle and render it more easily exhausted. In early myocardial

involvement good results may be obtained from suitable doses of digitalis. Toxic manifestations of the drug should be watched for carefully. It is well to remember when giving digitalis in such conditions not to judge the action of the drug by its effects on slowing the pulse, but by the character of the heart sounds and the improvement in the circulation. In acute myocardial involvement of acute febrile diseases the usefulness of digitalis is limited.

The essential feature in the intracardiac group of rapid heart action is the excessive activity in the genetic system. The increased rate is associated with a weakened myocardium, which in its effort to supply more blood to other organs beats more rapidly. A continuation of the rapidity leads to exhaustion of the myocardium. In this group digitalis is effective by stimulating the vagus center and diminishing conduction through the auriculoventricular bundle, and by the action of the drug on the heart muscle. Through a combination of these actions the rate of the heart is slowed, diastole is lengthened and the force of contraction is increased.

#### INDICATIONS

As progressive heart failure is always myocardial in origin, digitalis is indicated in all forms of myocardial disease whenever a definite contraindication does not exist. Dyspnea, orthopnea, edema, cyanosis, congestion at bases of lungs, and of the liver, accumulation of fluid in the serous cavities, evidence of cardiac dilatation on examination, alteration in the character of heart sounds, and a departure from the usual blood pressure level, are indications of myocardial insufficiency and hence for the use of digitalis unless partial heart block or bradycardia is present. The effectiveness of digitalis quickly becomes apparent in that the distressed breathing subsides, the heart rate decreases, the character of the sounds improves, urinary excretion increases. The results of digitalization in patients having chronic myocarditis with signs of insufficiency and a normal rhythm are as impressive as those that occur in auricular fibrillation, although the pulse rate in cases with normal rhythm may not show the slowing effects observed in fibrillation.



## DIGITALIS IN AMBULATORY PATIENTS

The second possibility in the use of digitalis, the prevention of recurrences of heart failure, has received little attention. Frequently patients recover from acute attacks of myocardial insufficiency and are discharged with little or no advice as to the subsequent use of digitalis in the maintenance of compensation. Many patients, especially elderly persons with a moderate degree of myocardial weakness, whether due to hypertension or other cause, may continue for several months to years without showing symptoms of increasing myocardial insufficiency. Ambulatory patients with cardio-vascular-renal disease are frequently seen when there are early symptoms of decompensation, such as shortness of breath on exertion, perhaps some cough, while others may have slight edema about the ankles, or mild digestive disturbances. Examination reveals an increased heart rate, the quality of the first heart sound shows a diminished muscle element, and urinalysis shows low specific gravity. Moderate doses of digitalis often relieve the symptoms promptly. In this type of patient the periodic use of digitalis is especially helpful in strengthening the myocardium, improving the circulation, and preventing attacks of acute heart failure.

The results of Pardee's work on the rate of disappearance of digitalis indicates the approximate efficacy of twenty minims of the tincture daily in maintaining the effects produced by previous larger doses. In treating ambulatory patients many physicians prescribe continual small doses in order to keep below the saturation point. On the other hand, when we realize that the amount of the drug necessary for initial digitalization is greater than that necessary to maintain efficiency when once established, that the effects of digitalis on the heart may last three or four weeks, a more rational procedure would seem to be to administer digitalis only when evidences of myocardial insufficiency appear. The appearance of symptoms, the character of the heart sounds, and the rate should again serve as guides for the size of the dose and the intervals. If compensation is not maintained when the patient is under a restricted body activity previously imposed, the indications may not be for larger doses of digitalis but for decreasing the work of the heart,

which may be accomplished by putting the patient to bed.

## CONCLUSION

Before prescribing digitalis it is essential to have a clear conception of its mode of action and the object to be attained from its use. Pharmacologic research has demonstrated that the action of the drug is constant and clinical investigations have shown that the results to be derived from its use depend upon the nature of the cardiac disturbance. A careful examination should always be made to determine the cause of the altered function of the heart, then in properly selected cases, whether ambulatory or bedridden, impressive results will be obtained from its intelligent use.

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*Lewis-Gale Hospital.*

## DISCUSSION.

DR. GARNETT NELSON, Richmond: I do not like to attempt to take Dr. Porter's place, but still I do like to talk about digitalis, so I am very glad to have the opportunity.

We see a good many articles published on digitalis and I suppose that every one in this room uses digitalis and is accustomed to prescribing it. Therefore, a paper attempting to work out some systematic method for using digitalis, a scheme or plan by which you can regulate your dosage and anticipate your results, is always timely. There is one thing with reference to the administration of digitalis that I should like to take up before it gets out of my mind. In the last two years I have never used, except when I have had to use a hypodermic, a liquid form of digitalis. I do not use the tincture nor any of the liquid preparations on the market, digifolin nor digitan nor anything of the kind. The reason for that, of course, is the variation in the size of a drop. You cannot tell a patient to take so many drops or so many minims of digitalis and know what you are doing. We went down in our drug room several years ago, poured out a cubic centimeter of digitalis, and dropped it in various ways, from a medicine dropper to the smallest pipet and from the bottle. The smallest number of drops we got was thirty-two and the largest eighty-one.

With reference to the method of medication, of course if you are in a hurry you have to go ahead and give large doses of digitalis. The effect of a dose of digitalis lasts about eight days. If you

have in mind what you need for digitalization, you can go ahead and scatter it out over several days. If you bear in mind that the heart once digitalized is more sensitive to digitalis, you will have to cut your dose down.

Then bear in mind that digitalis is a very active drug and you know what to expect, know what the average results will be. In regard to the contraindications to digitalis, the only one I know is partial heart block. In complete heart block it will do no harm but do no good. In partial heart block it may cause a complete block. In paroxysmal tachycardia it will do no harm but may do no good. Someone asked me if hypertension is a contraindication to digitalis. By no means. If you have a rapid heart action, arrhythmia, and decompensation, digitalis is just as much indicated in hypertension as when you have low pressure—or not as much, perhaps, but it is indicated. If you slow the pulse down, regulate the heart, and standardize the pressure, the pressure may fall instead of maintaining the high altitude it had.

## STUDIES AND REPORT OF FIVE HUNDRED EPITHELIOMAS.\*

By C. AUGUSTUS SIMPSON, M. D.,

and  
H. FORD ANDERSON, M. D.,  
Washington, D. C.

From the Dermatological Department of George Washington Medical School.

In presenting this report, which may seem a rehashing of an old subject, we are endeavoring not only to give our results, but to make certain deductions which may lower the percentage of failures in curing relatively benign and malignant epitheliomas.

In no other type of malignancy is the physician given the unhampered opportunity for cures and, while our results are striking and high, if we become too stereotyped in our methods of treatment we can continue to expect occasional failure.

To become over-enthusiastic and to employ radium, the X-ray or electro-coagulation, one to the exclusion of the other, in a lesion such as an epithelioma, which may vary in type and be totally different in its response according to its location, seems therapeutic empiricism.

So many splendid reports and statistics have preceded this paper, dealing with percentages of cures, types of lesions, location and so on, that it seems opportune to utilize these statistics in a broader survey of the subject.

While many of these reports are given after a reasonable time following the last treatment, there are some which are of rather short interval, which have no doubt left us open to criticism by physicians especially interested in malignant conditions. For instance, statis-

tics may show that recurrences take place most frequently in the first year after treatment; yet such a short time will not impress those whose work deals largely with malignant growths. Also, the percentages of cures of epitheliomas of the ear with both radium and the X-ray are clearly inaccurate and must in the light of more experience be revised.

The varying sensitiveness of the different types and especially the different locations of epitheliomas offers such a wide variation in response to treatment that a measure of selective therapy not emphasized in the past seems to be called for. For instance, the deeply indurated, ulcerated lesion, especially when occurring on the side of the neck in the region

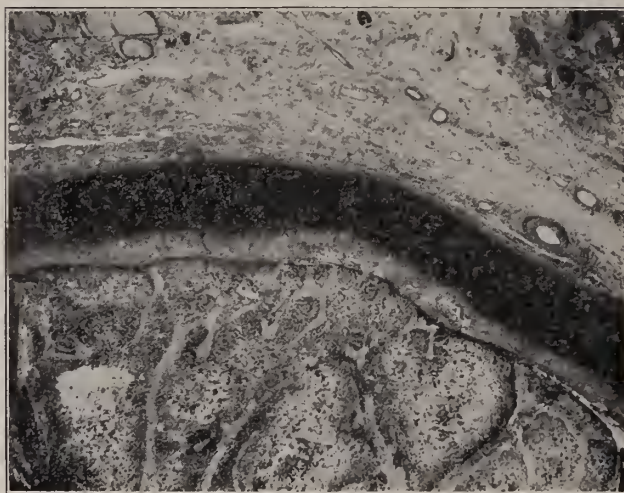


Fig. 1.—Basal cell epithelioma of ear extending to, but not invading, the cartilage.

of the ear, constitutes a very dangerous tumor no matter what its size may be. Such a tumor will resist more radiation than a similar lesion on the cheek. One reason is that the tumor of the neck is most often a prickle cell growth while the average cheek lesion is a basal cell tumor.

We have never been able more than to guess at the difference in types, but experience has led us not to rely on either radium or the X-ray in treating such a tumor but to destroy it thoroughly by electro-coagulation, and then to employ irradiation. So long as it is impossible clinically to differentiate a prickle cell from a basal cell epithelioma, it behooves us to regard many other growths besides the neck lesion as capable of metastasizing by destroying them thoroughly with the cautery and not trusting to radium and the X-ray.

\*Read before the Section on Dermatology of the American Medical Association, at Minneapolis, Minn., May, 1928.



We are satisfied that we have not been as radical in the destruction of epitheliomas as we should be, perhaps having in mind the cosmetic result or else trusting too much to radium and the X-ray.

In malignant growths of the lower lip in men and of the extremities we have by sad experience come to know that both radium and the X-ray exclusively are often inadequate. Many brilliant results with both should not blind us to the fact that here they should be considered only as auxiliary measures.



Fig. 2.—Prickle cell epithelioma of the ear showing typical pearls and whorls.

The same holds true possibly to a less extent in epithelioma of the ear, or any other location, such as the upper forehead, where a scarcity of subcutaneous tissue separates the epidermis from the underlying bone and cartilage.

This cushion of fibrous tissue, muscle and blood supply seems so necessary in securing a result with either radium or the X-ray as to warrant a change to other forms of therapy when it is absent.

In eyelid lesions, according to our experience, radium has an advantage over any other form of therapy, even X-ray. In a series of cases which failed to yield to X-ray treatment used by ourselves and others in varying filtrations and quantities, we secured uniformly good results with the radium plaque. Since employing the stronger plaques, we have not had a single failure, as our statistics will show. Such a clinical difference in the response to radium and the X-ray is commonly seen in the treatment of angiomas and lupus erythemato-

sis. It is known that radium produces a more specific selective effect on tumor cells than the X-ray, which gives more reaction in connective tissue.

It may be well to mention here that the patient should be warned of the possibility of a permanent alopecia of the eyelashes before treatment is begun. Since Washington has become the playground of the shyster, we have had one experience of this kind which has taught us a lesson.

Contrary to our results in eyelid epitheliomas is our experience with malignant growths of the ear and cartilage of the nose. With both X-ray and radium in varying doses and filtrations, we have not succeeded in curing a single patient.



Fig. 3.—End result of treatment of an extensive prickle cell epithelioma of the ear.

We feel that additional warnings should be given the profession regarding the resistance of these tumors and that real harm and a disastrous loss of time occurs if one relies on radium and X-ray for a cure.

Time and again we have seen reasonably quick healing of epitheliomatous ulcers of the ears which, if watched long enough, will break down and continue to progress. We have seen this so often that we cannot help but feel that some of the cases of reported cures have not been followed long enough.

The one and two year follow-up statistics are certainly inadequate in ear lesions. Actual



Fig. 4.—Typical epithelioma of the eyelid.

cautery or, better, electro-coagulation, going well beyond the borders of the growth, or wide surgical excision of the tumor, are the best methods for treating epitheliomas of the cartilage.

The true biologic action of radium and the

X-ray is still unfathomed but we do know that results are largely dependent on two factors: (1) interference with the blood and lymph supply of the tumors, and (2) direct injury to the tumor cells and at the same time an irritation to the surrounding tissues which produces a reactive reparative inflammation in favorable cases leading to the formation of a cell mantle around the tumor.

As to the stage in cell life when it is most radio-sensitive, it seems probable that we will have to amend the old law of Bergonié regarding mitosis. Strangeways was able to show that radiation had no effect on cells undergoing mitosis any more than on cells which have already acquired their adult morphologic or physiologic characters. It is in the pre-mitotic stage that the cell is most sensitive to radium and X-ray therapy, when its earliest effect is a temporary inhibition of cell division.

In an effort to ascertain the resistance of epitheliomas of the ear, we carefully studied histologic sections from eighty-five different cases collected from Johns Hopkins Hospital and our own clinics. We found that in no instance was the cartilage actually invaded, although this is not entirely an infallible rule. Therefore, actual cartilage involvement could not explain this resistance.

We went further in our studies of tissue resistance, employing varying exposures of radium to the ear and normal skin of rabbits.

The normal skin sections at the end of fourteen days showed the well known changes reported by all observers, while the reaction on the ears over the cartilage seemed to us unusually superficial. This superficial reaction seen in the animal was constant and gradually

## RESULTS OF TREATMENT OF MALIGNANT GROWTHS

Location	Number of Cases	Per-centage of Total	Per Cent Cured	Treatment												Previous Treatment						
				Radium		X-Ray		Combined* or Desicca-tion		Combined after X-Ray or Radium Failed		No. of Recurrences	No. with Insufficient Treatment	Failures		No. of Deaths	X-Ray or Radium		Surgery			
				No.	%	No.	%	No.	%	No.	%			No.	%		No.	%	No.	%	No.	%
Cheeks, including chin....	155	31.0	96.8	49	31.6	65	42.0	41	26.0	..	..	1	4	5	3.2	..	..	..	..	..		
Nose.....	115	23.0	96.6	23	20.0	48	41.3	44	38.4	..	..	..	4	4	3.4	..	..	..	..	..		
Eyelid.....	73	14.6	100.0	44	61.6	6	8.2	23	30.2	..	..	..	..	..	..	..	..	..	..	..		
Lower lip.....	24	4.8	91.7	5	20.8	3	12.5	16	66.6	2	8.3	..	1	2	8.3	2	..	..	..	..		
Upper lip.....	7	1+	100.0	3	43.0	2	28.6	2	28.6	1	14.3	..	..	..	..	..	..	..	..	..		
Neck, back of ears.....	24	4.8	87.5	7	29.1	5	20.0	12	50.0	6	25.0	2	1	3	12.5	1	..	..	..	..		
Ears.....	15	3.0	86.7	2	13.3	2	13.3	9	60.0	3	33.3	1	1	2	13.3	..	..	..	..	..		
Temporal.....	16	3.2	93.75	4	25.0	9	56.2	3	18.8	..	..	..	1	1	6.25	..	..	..	..	..		
Forehead.....	33	6.6	90.1	14	42.4	10	30.3	9	27.3	5	15.1	..	3	3	9.9	..	..	..	..	..		
Trunk.....	15	3.0	100.0	3	20.0	10	66.6	2	13.3	..	..	..	..	..	..	..	..	..	..	..		
Neck.....	9	1.8	100.0	2	13.3	6	40.0	..	46.6	..	..	..	..	..	..	..	..	..	..	..		
Extremities.....	24	4.8	83.3	3	12.5	4	17.7	17	70.8	2	8.3	3	1	4	16.6	3†	..	..	..	..		
Total.....	..	..	95.2	..	..	..	..	..	..	..	..	..	24	4.8	..	..	46	9.2	41	8.2		

\* Combined treatment included X-Ray or radium, plus desiccation or electrocoagulation.

† Arms amputated.



exaggerated with increasing dosage of radium. It is possible that it has some significance when considered with the fact that in this location there is a scanty amount of the well nourished subcutaneous tissue on which the good results of X-ray and radium treatment so largely depend.



Fig. 5.—End result in case shown in Fig. 4.

### CONCLUSIONS

1. Radium therapy, because of its convenience, as well as other valuable characteristics, is apparently the method of choice in the treatment of epitheliomas of the eyelid.

2. In ordinary epitheliomas of the cheek and nose, the use of radium or the X-ray constitutes an ideal treatment, excision or electrocoagulation or desiccation seldom being required.

3. Epitheliomas of the lower lip in men, on the extremities and below the ear on the neck are treated by X-ray or radium.

4. Epithelioma of the ear of any extent requires surgical excision or complete electrocoagulation, both radium and X-ray in themselves being entirely inadequate.

5. We believe that the percentage of failures

can be materially decreased by a proper selection of the methods of coagulation, radium, X-ray or excision, depending on the clinical type of the lesion and, above all, on its geographic location.

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### ABSTRACT OF DISCUSSION.

DR. JOSEPH J. ELLER, New York: The dermatologist has been more fortunate than the other medical specialists in the treatment of malignant conditions. This is because the lesions are accessible, and also because there is often an opportunity to see the lesions early. The treatment for superficial malignant conditions is not new. Dr. Pusey, twenty-five years ago, demonstrated cures of epitheliomas of the eyelids by means of the roentgen-ray and various other men also showed successful cures almost as far back as that. I do not think that we have improved our technic much in the last fifteen years in the treatment of these lesions. The newer methods of electrocoagulation, electrodesiccation and the high frequency knife are not greatly superior to the old cautery of several years ago. They are all destruction by heat. I was glad to hear the authors emphasize that it is dangerous to be a faddist in medicine. A man may become expert in electrodesiccation or radium therapy or roentgen-ray irradiation, and want to treat all cases by these means. That is a mistake, for we must individualize in all cases. It may be advantageous to combine all these methods. For instance, one might find it of great advantage to use first the endotherm knife, later a radium plaque application, and then roentgenotherapy for the adjacent glands. That is usually good treatment in all epitheliomas of the mouth and lips. It is well to use roentgen-ray irradiation in the glands of the neck, whether they are palpable or not, and in epitheliomas of the tongue, lips or mouth. Another point is that it is surprising to find how much tissue can be cut away from the lower lip and still leave a good cosmetic effect. I also wish to stress the author's comment that it is easier to destroy growths on the ear lobes by electrocoagulation than by means of radium or the roentgen-ray. I do not know why, unless it is because, as they said, the blood supply may not be so good in the areas over the cartilage as in other areas.

DR. LAURENCE R. TAUSSIG, San Francisco: I am convinced that in most instances we can differentiate between basal and squamous cell growths, and that it is well to do so, owing to the differences in the treatment indicated and used. It is interesting that every now and then we see growths which clinically seem to be basal cell but which later prove to be squamous. This does not alter our responsibility of trying to differentiate between the two types. In making the differentiation I think the duration is of great importance. I feel that radiotherapy alone should be restricted to basal cell epitheliomas, and then only when the cosmetic result is of importance, particularly in the lesions on the eyelid. For the usual basal cell growth I feel that the curet, followed by irradiation, is the method of choice. For the squamous cell growth, I prefer to curet, desiccate or use the actual cautery before irradiating.

DR. HAMILTON MONTGOMERY, Rochester, Minn.: In

regard to the failure of cases that do not respond to radium and roentgenotherapy, I wish to urge that a biopsy be made. I believe that on microscopic study most of these cases will be found to be either transitional epitheliomas showing both squamous and basal cell features or frank squamous cell epitheliomas. The transitional, i. e., the basal-squamous cell epitheliomas, are especially resistant to both the roentgen-ray and radium.

DR. GEORGE M. MACKEE, New York: On several occasions I have searched the literature on cutaneous X-ray therapy only to find that I had collected impressions mostly with very few proved facts and almost no statistics. About ten years ago I compiled my epithelioma statistics. In unselected cases of basal cell epithelioma treated with the X-ray there were 85 per cent permanent cures based on a five year period of observation. I could never obtain more than about 95 per cent cures in selected cases. Some lesions, even when small and superficial, cannot be permanently cured, or even clinically cured with the X-ray or radium. The explanation may be that about 12 or 15 per cent of basal cell epitheliomas are of an undifferentiated type; that is, they contain peratinized cells, or prickle cells, or are derived from the layer just above the basal cell layer—cubocellular epithelioma. A hasty microscopic examination of such lesions leads to a diagnosis of pure basal cell epithelioma. If I were to compile statistics again, it would not be surprising if the percentage of cures was a little lower; that is, in the lesions treated with the X-ray or radium alone. In those days I employed larger doses than at present, especially in comparatively young patients, because it is preferable not to leave the so-called X-ray skin. It is my opinion, and this emphasizes a statement just made by Dr. Eller, that the dermatologist should be expert in the use of several methods of treatment, such as the X-ray, radium, surgical diathermy and surgical excision, and the modality best suited to the individual case should be selected. There is probably no better method than the X-ray in selected cases, but if the lesion does not respond to a dose that is safe and sane it is much better to resort to some other method or a combination of methods, rather than to insist on curing a lesion with the X-ray that is exceptionally recalcitrant to this agent.

DR. ARTHUR J. MARKLEY, Denver: There is no doubt that many of the failures experienced in the treatment of malignant conditions of the skin have been due to inadequate radium dosage. Plaques containing from 5 to 10 mg. of radium with very little or no screening are very widely used in the treatment of basal cell epitheliomas; many are cured by this technic, but it is certain that many others progress deeply in the skin even though superficial healing occurs, and, as Douglas Quick recently observed, such failures have been an important factor in bringing about the wide use of the various forms of heat therapy, endothermy in particular, as they are certainly more effective than radium in inadequate dosage. If basal cell epitheliomas, 1 cm. or more in diameter, are given a minimum radium dosage of from 400 to 500 milligram hours, screened by 2 mm. of lead at a distance of 1 cm. from the lesion, they should be eradicated; the resulting scars, even in the more superficial types, will be more satisfactory, and deep recurrences and extensions will be largely prevented. This is most conveniently done with 50 mg. of radium, but the amount may, of course, be varied, and the time increased or de-

creased. In the prickle cell type, even larger dosage is required and should always include treatment of the anatomically related lymph glands. Radium plaques have a definite place in dermatologic therapy but without undue expenditure of time they do not furnish sufficient radiation for the treatment of any but the most superficial malignant growths.

DR. WILLIAM ALLEN PUSEY, Chicago: I am always interested in papers on the treatment of epithelioma and am always impressed with the fact that many of the distinctions we make are distinctions of personal equation, and not essential differences. I agree that many of the things that have been said this morning are correct, but I do not agree with many of the differences of opinion about refinements. In treating any epithelioma, the problem is essentially not the agent one uses but the use of the agent that will completely destroy the growth. I have often thought that, if forced by necessity, one could take the head of an old flint arrow and a little caustic lye and treat an epithelioma successfully with that. I have no particular interest in the various modified devices that the individual prefers. This is illustrated in the matter of the quantity of radium we use. The statement that a plaque of 5 mg. in 1 cm. of square area, or 10 mg., is not adequate for the treatment of a superficial epithelioma is disproved by my long experience. I have been fortunate for some time in having more than 50 mg. of radium, but I use the plaque successfully all the time.

DR. H. FORD ANDERSON, Washington, D. C.: I am rather inclined to agree with Dr. Pusey about the use of the radium plaque. We have obtained very good results in the eyelid growths, 100 per cent being cured by the use of the triple strength radium plaque, filtered through 0.1 mm. of aluminum, in the usual case. I agree that in most cases we can tell whether they are basal or prickle cell growths, although we do not have sections of the cases to show and we did not divide them into the basal cell and squamous cell varieties. We try to get a section of all the cases of recurrence and of the resistant lesions.

### FIRST AID TO THE INJURED EYE.

By CLARENCE PORTER JONES, M. D., F. A. C. S.,  
Newport News, Va.

Those of us who practice ophthalmology see many an eye either partly or totally blind, which could have been saved had there been a simple first aid given by the family physician.

The increase of farm machinery as well as machine made goods in the shops has increased eye hazards year by year. One-twelfth of all injuries are to the eye, according to Stanford, and one-tenth of all blind persons lose their sight by accident. Much of this latter can be prevented, and it is not far short of criminal when any of us fail in our duty.

Every physician who is practicing in a locality which is out of touch with an oculist should carry in his satchel the following items: 1 drachm of butyn 2 per cent, or cocain 4 per cent, a small bottle of mercurochrome, or tinc-



ture of iodine; a drachm of 1 per cent atropine, or a tube of atropine eyesalve 1 per cent; a few clean wooden toothpicks; a bit of cotton, gauze, adhesive and roller bandages, and a corneal spud.

There are circumstances often which make it well nigh impossible for a sufferer from an injured eye to consult an oculist. Then the family doctor should arise to the emergency of the occasion.

Injuries to the conjunctiva, if confined to this structure can be treated with zinc sulphate drops, one grain to the ounce, or irrigation with boric acid solution or bichloride of mercury 1 to 8,000.

Penetrating wounds of the eyeball require at all events prompt care by an oculist who has hospital facilities. The first aid requires gentle irrigation of the conjunctival sac to remove any debris, clotted blood, etc., and the putting on a sterile dressing.

Burns are best treated by instilling castor, or sweet oil, and atropine drops. Of late, however, picric acid in combination with a local anesthetic, in the form of an ointment, is recommended.

Wounds of the eyelids should be carefully stitched, with due regard to as near complete approximation as possible, using 00 catgut, or dermal suture material.

About 95 per cent of all the dangerous wounds to the eye are abrasions of the corneal surface, nearly always from a foreign body embedded thereon. Here is where first aid properly given is perhaps the greatest stroke in preventive medicine, from an economic standpoint. Every injury to the surface of the cornea should be assumed to be infected, and treated accordingly.

Just as soon after an injury to the cornea as is possible (the sooner the better), a few drops of butyn, or cocain, the former being preferable, are instilled. Immerse the blade of a corneal spud in the alcohol bottle, instill more anaesthetic in the eye; ten minutes from the beginning, take the spud and gently lift away the foreign body, being careful to injure as little of the corneal substance as possible. Wrap a few shreds of cotton around the end of a toothpick, dip in mercurochrome or iodine and touch the abraded surface. If the abraded surface is as much as a square millimeter instill a drop of 1 per cent atropine, or some atropine eyesalve, except in persons over

fifty years of age. And unless the patient can stay indoors, put on a dressing and let it remain for twelve hours. Then, if there is any pain or discoloration about the site, the case should be treated as an ulcer of the cornea.

The first aid to an ulcer requires perhaps more judgment than in the treatment of any other disease about the head. Whether the actual cautery, the curette, the application of heat or cold, there is one thing the general practitioner can do in those cases for whom an oculist cannot be obtained, and that is to put the patient in bed, anaesthetize the eye with butyn or cocaine, touch the ulcer with 5 per cent mercurochrome, and if under fifty years of age, instill atropine every three hours and apply butyn ointment 1 per cent as needed for pain. In this way many an eye will be saved which would otherwise be lost.

Electric welder flashes (electric ophthalmia) are not true injuries, but a "nerve shock" to the parts which are treated by butyn, 1 per cent ointment, and a dressing applied for twenty-four hours.

The cornea is a non-vascular structure, nourished by lymph osmosis from the lymph spaces in the conjunctiva and sclera, which lie in juxtaposition to its own. Thus we see it is feebly resistant to infection.

Destruction of the corneal substance is the essential feature of all forms of suppurative keratitis, leaving an opaque cicatrix at best on healing, or by perforation involving the whole eyeball, resulting in phthisis bulbi, and total loss of vision. The prevention of such a calamity is the sole purpose of these few scattering remarks.

Cocain, atropine and other alkaloids, develop a ferment after some ten or fifteen days in solution or in the form of salve, unless they are made up in combination with an antiseptic. We find that to each ounce of solution or ointment, bichloride of mercury one-sixth of a grain, sodium chloride one grain, will delay fermentation or other deterioration practically indefinitely. In case of the ointment, the druggist should rub the salt, atropine, cocain, or mercury up first in a few drops of thin mineral oil, before adding to the vase-line.

In conclusion let me beg you to remember that:

First, the prevention of infection in wounds of the eye is our most imperative duty.

Second, all abrasions of the cornea, however slight, should be assumed to be infected and treated antiseptically, using mercuriochrome or iodine, and perhaps atropine and a sterile dressing.

Third, corneal ulcers should be referred to an oculist as promptly as possible, on account of the danger of destruction of the eyesight.

Fourth, if there is any reason why this is impossible, it is the urgent duty of the physician to treat the same himself vigorously.

3117 West Avenue.

### RECTAL ANESTHESIA IN THYROID SURGERY.\*

By H. H. TROUT, M. D., Roanoke, Va.

I will refrain from giving a historical review of the origin, the progress and the various modifications of rectal anesthesia, except simply to mention that the greatest credit is due to Dr. James Gwathmey, of New York, for making this procedure as popular as it is today.

It is not necessary to more than mention to this, or to any other medical gathering, the name of Crile without every mind instinctively recalling his wonderful, and revolutionary work in the fields of "psychic shock" and "anoci association". During any visit to his Cleveland Clinic, one is very favorably impressed with the wonderful "team work" and attention to every detail which is required to carry out successfully all the necessary procedures incident to anoci-association. The average surgeon naturally, after witnessing such a remarkable demonstration of attention to details, as is required by so many trained associates—from interns down to orderlies—asks himself if he can apply this method to his thyroid cases in the hospital in which he works. There are very few surgeons in the world who have sufficient thyroid work to properly train so many different people, so that the method of Crile can be carried out "without any hitch", and one mistake spells failure. The vast majority of the teachings of Crile can be carried out in the average well organized hospital, but operating at a time when the patient does not realize the operation is to be, has proven the most serious obstacle to the carrying out of Crile's suggestions, and only very few surgeons have been able to master the subject.

It is in this "part of the campaign" against the fear of the operation that we, along with many large hospitals, find rectal anesthesia of considerable aid, for with its use one can operate without the patient even suspecting the hour or the day of the operation. Naturally we have done our share of thyroidectomies under local anesthesia, both with and without the addition of nitrous oxide or ethylene with oxygen and ether, but we now feel that rectal anesthesia gives us an additional margin of safety, and certainly permits the operation to be done with much more comfort to the surgeon and less dread, and therefore less "psychic shock", to the patient. Of course, if one desires to carry out to the fullest extent Crile's anoci-association, block and regional anesthesia can be employed. Many surgeons feel the healing of incisions is not as satisfactory with as without infiltration anesthesia. Personally, I have not seen enough difference to form other than a conjectural opinion.

As yet, there have been reported no bad results from using ether in the rectum in thyroid cases which could in any way be ascribed to some peculiar toxicity existing between this anesthetic and hyperthyroidism.

The method of giving rectal anesthesia is not as simple as some enthusiasts would have us believe, for here, too, as in every other procedure employed to deceive the patient and allay her fears, attention to minute details and a well organized hospital staff is required if the method is to be fully successful.

When the patient, after the usual pre-operative preparation by the employment of basal metabolism studies, Lugol's solution, rest, mental therapy, etc., has reached the best possible condition, the start of various steps in the method of giving rectal anesthesia begins.

If the operation is scheduled for nine A. M. on the day selected by the surgeon, the following routine is employed and started three or four days before the appointed date. Every morning about seven A. M., the patient is given an S. S. enema. At eight A. M., a hypodermic of morphia, grains 1/8, with atropine grains 1/120, is given, and, if the patient is not asleep by eight-thirty, the morphia is repeated. Also, at eight A. M., 300 c.c. of olive oil with just enough ether to allow the patient to smell it (usually one drachm) but not enough to have any anesthetic effect is injected into the rectum.

\*Read before the Southwestern Virginia Medical Society, at Wytheville, Va., September 27-28, 1928.



After three or four days of this, depending somewhat on the patient's reactions, and the allaying of her fears, 150 c.c. of ether with 120 c.c. of olive oil is substituted for the routine olive oil. Gwathmey recommends 30 c.c. of ether to every twenty pounds of the patient's weight, but, with us, we have found the patient is not as apt to expel the solution if given in smaller quantities. Another aid in preventing the expulsion of the solution is to be sure it is given slowly. Recently we have tried a syringe with a bulb near the tip which is put in the rectum and then pulled back so as to block the escape of the fluid. As yet we have not had sufficient experience with its use to justify an opinion.

It has been our experience that by nine A. M. following this routine, the patient can be brought to the operating room, the operation performed leisurely and without alarming the patient. In fact, in a considerable number of our cases, the pulse rate has been reduced when compared with the usual rate. In not one single instance has the patient realized the operation was to occur on the date it actually took place.

To illustrate the necessity of attention to every detail, I recall one experience told us by one of our patients. She said she was suspicious that the operation was going to be on that particular day because of the failure of the nurse to put her flowers back in her room early in the morning.

In another instance, suspicion was aroused by the nurse removing the water pitcher from her bedside table at the middle of the night and not returning it at the usual hour in the morning. Of course, these defects were easily remedied.

Apparently the mental relief the patient obtains from the realization the operation has been done without their knowledge far offsets the shock experienced on finding out the ordeal is finished.

Post-operative nausea is almost entirely eliminated, which is very likely largely due to the small amount of ether employed. The relaxation we obtain in these patients is not sufficient to even consider a laparotomy. Certainly the nausea and toxicity is nothing like as great as one would obtain by giving sufficient morphia to numb the sensation of patients to the extent that they would not

know they were on their way to, or in the operating room.

It is very interesting and instructive to talk to these patients a few days after operation, and the one point which seems to be present, without suggestion from anyone, and also without a single exception, is the excessive gratitude these patients express that they have been spared the dread of realizing they were on their way to the operating room, as well as spared the trials of an operation done under local anesthesia, even if performed without pain.

There is a certain dread or fear, with some consequent "psychic shock", due only to the realization by the patient that she is in the operating room. The method will probably never be very popular with busy surgeons for the length of time it takes for the patient to be completely under the effects of the ether varies considerably, and, for that reason, it is best to list only one thyroid case for that day. However, one active surgical friend of mine puts on his most toxic ~~case~~ with rectal anesthesia first in his day's work, and with the remaining cases he uses a combination of local and ethylene. It is interesting to note this surgeon is enthusiastic concerning rectal ether, and is trying to arrange his methods so that one case after another can be done without confusion. He finds not only does he have to consider the varying time of the anesthetic to take effect, but also his inability to accurately gauge the length of time required in different thyroidectomies.

The removal of all apparatus, such as masks, shields, etc., from the face, gives an easier and larger operative field. Sometimes the patient is not completely relaxed, and then usually all that is necessary to produce deeper anesthesia is to place a wet towel over the mouth and, thereby, make the patient rebreathe the ether.

At the completion of the operation, a rectal tube is passed and the remaining ether-olive oil solution readily escapes. We usually then wash out the rectum with normal saline. When rectal ether was first used, there were some reports of irritation of the bowel and several rather extensive sloughs of the mucosa, but, in recent years, this distinct disadvantage has apparently ceased to exist, and this is due to the better proportions of the mixture, etc.

A few years ago we tried giving magnesium sulphate hypodermatically for the synergistic

effect, as also advocated by Gwathmey, but we had two small, but most unpleasant, sloughs at the sites of the injections and, therefore, abandoned this practice.

Of course, we do not believe the fact that we have had no deaths in our thyroidectomies for hyperthyroidism, since we have been employing this method, is entirely due to the use of rectal anesthesia. Any death rate can be largely controlled by the selection of cases, in addition to the generally accepted pre- and post-operative care, but such "selection" in the hands of some surgeons sometimes leaves a small percentage of cases to die at home. These cases might be saved by adding rectal anesthesia to the routine of a well-equipped hospital. We do feel, however, this method has been a contributing factor to what success we have had, and we do know this procedure has proven of much comfort, and we believe some safety, to our patients, as well as added to the ease of the surgeon in doing what is sometimes a difficult operation.

### RHEUMATIC HEART DISEASE.\*

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The past few years have seen a tremendous awakening of the medical profession and the laity in the subject of heart disease. The American Heart Association, through its publications, has opened our eyes to the vast number of cases and to the appalling economic loss attendant thereto. The prevention of this loss to the country is receiving the attention it rightfully deserves along with tuberculosis and cancer. And just as in the latter two diseases, only by recognizing the disease in its incipency and by investigations into its causes can it be prevented. While the economic loss is not usually recognized until adult life, it is in childhood that the majority of the cases of chronic valvular diseases have their beginning. The death rate in New York City over a period of six years shows three times as many deaths from heart disease in children of school age as from tuberculosis. In older children the curve of cardiac deaths is steadily mounting. This increasing death rate in the young does not give any idea of the enormous number of young adults incapacitated for work who become an economic liability to the community.

Heart disease in this paper refers to endocarditis, myocarditis and pericarditis, since the causation in each is apparently the same. When heart disease is discovered in the young, one's thought is immediately focused on rheumatic fever as the causative factor. Perhaps there is no clear history of such an infection obtainable; and, while chorea is a frequent antecedent, it is not always possible to obtain a history of such an occurrence. Rheumatic fever and its allied symptoms are both varied in their manifestations and severity. Frequently growing pains, muscle pains, complaints of being tired, slight muscular twitchings go unnoticed by the parent and are never associated with so grave a condition as the later manifest heart murmur. On the other hand, the physician is apt to blame every murmur on an antecedent rheumatic attack whether he can obtain a history of such or not. Such diseases as scarlet fever, measles and pertussis have been blamed for a later valvular lesion, though no convincing evidence has thus far been brought forward to substantiate this. And while it is never amiss to temporarily look upon all heart murmurs in young people as serious, or potentially so, there are many children who have been compelled by their physician to lead a restricted life for months or years when in reality the murmur or an irregularity was of no consequence. This is particularly true where a soft apical murmur has been the result of a low grade anemia, or an irregularity was nothing more than what Mackenzie said "is a sign of healthy heart muscles". Marshall saw this latter condition in only two of 119 cases of heart disease reported in the *Archives of Diseases of Childhood*.

Many causes have been assigned to rheumatic fever and its associated heart disease and chorea. An hereditary tendency or weakness, climatic conditions, diet, and a specific organism are perhaps the more important ones. There is no denying the fact that a good many families have a history of rheumatism in one form or another and many are known to have even the more serious heart complications. I have personal knowledge of one such family in which the mother is a chronic sufferer from rheumatic heart disease whose child died of the disease, and in another family two girls had rheumatic fever and heart disease, one dying, while the other is still a sufferer. There

\*Read before the Medical Society of the District of Columbia, October 31, 1928.



are numerous other families, however, in which the disease has no known antecedent history. Climate, no doubt, has its proper place as an accessory cause, as it is conclusive that in the north temperate zone cases are more common, especially where humidity is excessive. The economic status of the family also plays a part. The well-to-do escape infection in many instances, no doubt, because of the closer attention to minor ailments, which, if neglected, would cause a lowering of resistance to the infection. Notably, Small, Rosenow, and Birkhaug have each reported in the past few years an organism which they claim to be specific for rheumatism and its allies. These organisms have invariably been cultured from the tonsils and rarely from the blood stream. Each has made a serum for the treatment of the acute illness and a vaccine for chronic cases. These organisms have all been allied to the streptococcus group. Poynton and Payne, in England, isolated a diplococcus as the causative agent as early as 1900. Further study is necessary, however, before a definite conclusion can be reached as to the specific causative bacterium or the efficacy of serum.

The onset of rheumatic fever in the child is a very insidious one as a rule. Malaise, complaints of discomfort in the extremities (so-called "growing pains"), temperature, feeling tired, rapid heart action or the like may be the first thing noticed. These symptoms are apt to be overlooked and only when the patient limps, shows dyspnea on exertion or begins to run a noticeable temperature, does the parent take note. A gradual onset of these symptoms with anorexia and anemia proves the condition to be more grave than first thought. I have only a few days ago seen a child of six in the dispensary at Children's Hospital whose complaints of nervousness, occasionally dropping articles, coming in from play feeling tired, feeling discomfort in the arms and legs, typifies the insidious onset which so frequently results in a serious attack of rheumatism and carditis. The onset may, however, be sudden, with fever of 101 to 103, acute pains in one or more joints, vomiting, pain in the abdomen, sore throat with red and swollen tonsils, rapid heart action with or without a murmur or symptoms of chorea. Even cardiac symptoms and signs may usher in an acute attack. Severe pain and the profuse sweats of adults are not common symp-

toms in the child; rather do we see more prostration and toxemia and earlier symptoms of cardiac involvement. The leucocyte count is never excessive, ranging from 8 to 12 or 15,000, with polymorphonuclears relatively increased; according to Swift persisting for a relatively long time. This persistence of a leucocytosis of moderate degree is frequently the only indication of an existing focus of infection later on in the subacute or chronic phase.

With the disease having been established and the acute symptoms of rheumatism having subsided, certain symptoms specifically related to cardiac involvement may manifest themselves. Temperature which persists above 100 degrees for several days should always be regarded seriously. Scanty, high colored urine is present. Dyspnea in varying degrees of severity is found usually associated with cough and cyanosis of a lesser or greater degree. Pain in the region of the heart is a frequent symptom and varies greatly in its severity and character from the sharp stitchy pain similar to pleurisy to that of a sense of constriction about the lower neck. Palpitation may occur and is necessarily a sign of definite injury, as are epistaxis, cyanosis of the face, pain and tenderness over the liver, and edema about the ankles or other dependent parts. These latter symptoms may generally be regarded as signs of myocardial degeneration rather than a valvular lesion. The electrocardiogram shows some functional disturbance in practically 90 per cent of cases of early or moderate carditis.

The diagnosis of rheumatic heart disease offers a good many pitfalls to one who neglects certain fundamental symptoms and signs. In children the early disease is rather that of an acute toxæmia than a local joint infection or cardiac embarrassment. With evident arthritis, chorea, etc., this mistake is inexcusable. The obscure symptoms of loss of weight, anemia, low grade fever, repeated attacks of tonsillar infection, feeling tired and nervous should put one on guard. In such cases cardiac symptoms as such are not usually found, but these are the cases in which prevention becomes all important. One should be doubly careful in these cases not to make a too hasty diagnosis of heart involvement because of an irregular action or a soft systolic whiff heard at the apex. Should such a diagnosis be made, the next question is whether or

not the heart disease is due to rheumatism. A rheumatic history is perforce important. This is not necessary to such a diagnosis, however, since, on close questioning, many cases will give a history suggestive of rheumatic disease or chorea many years previously, who present themselves with a lesion which must necessarily have been of long standing. Those cases following scarlet fever are in all clinical and anatomical respects similar to the true rheumatic type. Certain other cases with no rheumatic history are no doubt of rheumatic origin, since they simulate the latter so closely in their anatomical lesions and clinical course that it is impossible to differentiate them. This is particularly true of the chronic cases with a predominating cardiac enlargement and mitral insufficiency.

Having thus far made a diagnosis of rheumatic carditis, the extent of the damage must be ascertained. Both the valvular lesion and the myocardial injury must be determined in order to faithfully gauge the prognosis and treatment. The size of the cardiac chambers may be ascertained by (1) the position of the apex beat, (2) the area of cardiac impulse, (3) the force and duration of the systole, (4) position of the left cardiac border, (5) increase in cardiac dullness to the right of the sternum. This latter sign is especially recognizable by X-ray examination. Dyspnea and cyanosis are perhaps the more valuable symptoms referable to the functional capacity or efficiency of the heart muscle. The ability of the heart to return to its usual rate following mild exercise is a further test of value. A totally irregular heart is readily recognized as one having a more marked degree of impairment of function. Whenever possible an electrocardiographic examination will give valuable information. However, many cases are not suitably placed for such, and one's clinical observation must suffice. Of the lesions of the valves, one has to rely upon the time honored physical signs diagnostic of damage to each. The pure presystolic murmur accompanied by a thrill means mitral stenosis. A systolic murmur at the apex may mean either a relaxation of the ring or a true insufficiency,—usually the latter when the murmur is long, high pitched and loud, and definitely transmitted. A diastolic murmur heard over the entire precordium and especially along the left sternal border, extending to the

vessels of the neck and accompanied by a slow, hard pulse, usually indicates aortic disease. Lesions of the tricuspid and pulmonary valves are of more academic than practical interest. The pericardium infrequently escapes injury when there is a moderately severe infection of either the myocardium or valves, and, while the typical to and fro friction rub may not be heard at once, repeated examinations will probably reveal at some time such a suspicious sound. The rub is usually more clearly brought out by firm pressure of the stethoscope and seems nearer the ear during such pressure. The rub may be present for only a short period of time and hence is frequently overlooked. Later, effusion may be present, giving the typical cone shape. Poynton and others deny its occurrence to such an extent as to give physical signs, but with the shape and rapid increase in size of the cardiac dullness and a lessening of the intensity of the heart sounds, such a diagnosis may be made with a fair degree of certainty. Later, chronic adhesions may occur with an enormous and persistently enlarged heart.

Since it is established that the heart is damaged by the infection, is it possible to locate a focus and prove it active? As stated before, a rise of temperature is in the majority of cases a certain proof of such an active focus. A colored girl of fifteen, who had been followed for a number of years, had an exacerbation of symptoms accompanied by temperature which proved to be a chronic appendicitis, the removal of which was followed by an immediate subsidence of temperature and a gain in weight of fifteen pounds and improvement in heart action. Many other cases have no temperature but show a progressive and persistent loss of weight, with anemia or tachycardia. A weekly blood count in these cases may be the only indication of an infection and should be part of the routine investigation.

Coombs, in his excellent monograph on Rheumatic Heart Disease, gives the most reliable figures thus far by which to gauge the prognosis of these cases. In 600 odd cases seen, he has been able to trace the majority over a period of fifteen or more years. The cases were divided into groups, one consisting of those cases seen in childhood or during the active phase of the disease, and the other comprising those seen for the first time after the



lesion had become well established. The childhood group was further divided into undoubted cases of the disease and those of a doubtful character. Of the active positive group, there were 218 traced; 5 per cent died in the first year, 11 per cent within five years, and 21 per cent within ten years. These figures are in marked contrast to the group of doubtful cases in which only 6.5 per cent were found to have died in the same length of time. Of this group, thirty-one cases were followed for over ten years with a disappearance of all signs of disease in fourteen, eight cases remained the same, while nine showed an increase in signs of permanent valvular damage. A more cheerful note is found in the statement that of 200 undoubted cases of early rheumatic heart disease, 25 per cent showed no evidence of cardiac involvement after fifteen years. Thus, there is definite evidence of the value of close follow up in those very doubtful and suspicious cases. These facts seem to justify a conclusion that those individuals developing early signs of carditis have gotten an infection which proves fatal in one-fifth of the total, with marked functional impairment in the others, while the suspicious cases are only mildly infected or close attention has been of marked benefit to them. In the second large group in which the disease had become well established when first seen, the age of onset was found by careful history to have been at an average of 14.6 years, as against an average for the first group at ten years. The average age of this group when first seen was twenty-seven years. Of these 281 cases, sixteen died before twenty years of age, ten from non-cardiac causes; of 245 traced to age thirty, thirty-eight died of cardiac disease; of 192 traced to age forty, seventy-five died of cardiac causes; eight-three cases were found over the age of forty. Of 167 deaths due to rheumatic carditis in this group, it was found that the second decade showed the highest percentage. The figures do not take into consideration the ability of the patient to work or carry on any of the useful functions of child or adult. Many of these patients will continue to work as long as they are able to get about while others become invalids in a short time. The economic status invariably plays a part. So many have found it impossible to complete a school education sufficient to enable them to do more than ordinary labor,

whereas a more sedentary occupation would no doubt have given them a longer span of economic independence as well as life. And while many other factors enter into the cause of death and incapacity for work, such as environment, heredity, pregnancy, age of onset, etc., perhaps the most important are the mode of onset and subsequent recurrence of the rheumatic infection. In England, subcutaneous nodes found early in the disease are considered of serious omen, a finding seldom noted here; with primary cardiac symptoms coming second, while joint symptoms and chorea follow in order. In general, one may gauge prognosis by two principles: (1) The severity of the cardiac lesion is proportional to the intensity of the rheumatic infection; (2) The failure of the myocardium is evidence of the direct invasion of the heart muscle by the disease, or the mechanical disability of the valves.

Due to the fact that rheumatic heart disease is an acute infection, causing a chronic crippling of an essential organ of the body, the treatment of the disease is as varied as its numerous symptoms. Obviously the mild attack with symptoms suggestive of cardiac involvement does not deserve the immediate care of a severe attack with definite joint pains and myocardial weakness followed by chronic valvular disease. It is impossible in so short a time to do justice to any one procedure and I can only mention in a broad way the application of the more important ones. Rest in any acute infection is of first importance and should be instituted at once for such length of time as symptoms indicate. In the younger child, due care should be exercised as to the length of time complete rest is imposed, since more harm than good may be done. It is in convalescence that special care must be exercised. Here all the good previously accomplished may be lost by too hasty permission to walk, to go to school, to resume work, etc. It is a peculiar but definite observation that few children will play beyond mild symptoms of distress. Just here one encounters the great stumbling block in the path of all cardiacs. Of what type of work is he physically and mentally capable? On the one hand is the child who has a moderately severe cardiac involvement, and has obtained a reasonable amount of education of a vocational character which he follows through a number of pro-

ductive years. On the other hand is the patient who has not had such an education and who breaks down under all manual labor, the only work which he is mentally fitted to do, and who finally becomes a public charge—to die at the age of twenty-five or thirty years. This is the need at present most pressing,—the establishment of vocational training and occupation for the chronic cripple, whether he be cardiac, tubercular, etc. And while this restraint must be put on all cardiacs, they must be encouraged to do what they can without symptoms of distress. They must be given something to do which will stimulate them to mental cheerfulness and physical improvement. We have learned to do this with the tubercular patient and it must be taught to the cardiac.

The use of sodium salicylate or acetyl salicylic acid with bicarbonate of soda may be spoken of as almost specific for the acute attack, especially as we have no other drugs which can compare with them in their action. Reasonably large doses over several days past the febrile stage seem most effectual. Open air and diet are here as essential as in any chronic disease with a tendency to loss of weight, anemia, etc. The use of drugs in the later stages of cases with more or less failure of the heart is an evening's program in itself, and I only mention digitalis, caffeine and opium to say that they are more firmly entrenched in their usefulness than ever before. No organ which has suffered a pathological change, such as a heart during an attack of rheumatic fever, can be restored to its original condition by the most ingenious treatment known. Hence, it is not necessary for me to mention prevention in connection with rheumatic heart disease except to emphasize certain phases which may escape casual observation. Investigations by the bacteriologist toward isolation of the causative organism, and by the clinician as to the effect of diet, climate, heredity, etc., are essential to the future obliteration of the disease. Foci of infection, such as we recognize at the present as probable causative factors including diseased tonsils, teeth, sinuses, etc., must be dealt with in the most intelligent manner recommended from time to time. And while there is a great deal of argument for and against the beneficial effects derived from the removal of diseased tonsils, statistics of several groups of cases do not

show the success we would like or might anticipate. Kaiser has recently reported a series of 48,000 school children in which 20,000 had had tonsils removed. The incidence of rheumatic fever, chorea, joint pains, etc., occurred practically the same number of times in the two groups. Cardiac complications were found to be less in the tonsillectomized group, however, and some of the cases had already developed rheumatic heart disease before operation. Ingerman and Wilson quote 76 per cent recurrences in operated cases and 80 per cent in a control group. Mackie found 80.6 per cent of 393 cases of rheumatic fever had foci of infection as against 67 per cent incidence in a control group of 400, with 58.7 per cent of infected tonsils in the first compared to 27.5 per cent in the latter. Dental sepsis was a common finding in each, a condition which seems to be on the increase, and which is related not only to rheumatic fever, but to recurrent and persistent coughs, colds, sore throats, etc.

But by far the greatest need at present with our limited knowledge is the recognition of the incipient cases. Growing pains, twitchings of an early chorea, loss of weight and anemia must be recognized as serious symptoms, and should not go unnoticed. The student's concept of rheumatic cardiac disease must be made broader than the usual text-book description. He must visualize the insidious onset of mild symptoms which progress to a severe toxic disease with general cardiac damage and not just the establishment of an anatomical lesion called mitral stenosis.

And, lastly, the parent and patient must be taught the seriousness of early symptoms and their care, in order that the patient may be given a fighting chance to save for himself years of comfort and usefulness.

2002 R Street, Northwest.

## PERFORATING FOREIGN BODIES IN THE ESOPHAGUS.

### Report of Three Cases.

By E. TRIBLE GATEWOOD, M. D., Richmond, Va.

The esophagus may be invaded by any substance of the animal, vegetable or mineral group and, debarring symptoms of dyspnea, they should always be regarded more serious than like substances in the air passages.

The esophagus is a septic organ and very



intolerant to any form of trauma. Objects of smooth contour, such as coins, etc., are rarely harmful, even though they remain in the esophagus many days.

Perforating or cutting foreign bodies in the esophagus are always a source of danger, and this is especially true if left unrecognized for many days.

Infection following trauma, incident to foreign bodies in the cervical esophagus, usually results in a cellulitis, and infection following those in the thoracic esophagus frequently causes mediastinal abscesses with their dreaded symptoms. Foreign bodies of this nature in the thoracic portion of the esophagus may also perforate the pleura and cause complications.



Fig. 1.—Case 1, showing position of rabbit's rib.

Patients having pain about the chest during or after swallowing should be regarded as a foreign body suspect, and should not only receive X-ray film study, but barium mixture in fluid and capsule form under the fluoroscope. Many of these cases will be negative to the actual foreign body demonstration. However, a large percentage will show some esophageal dysfunction, and all such cases, of course, should be further studied with the esophagoscope. Generally speaking, cases giving a history of pain upon swallowing and dysphagia should be esophagoscoped, though X-ray studies prove negative.

Two of the following cases emphasize that esophageal foreign bodies are not always suspected, though the patient gives a definite history of such.

CASE 1.—White man, aged thirty years, stated that, while eating rabbit stew the previous day, he was suddenly conscious of a stick-

ing sensation in the upper part of the chest. He consulted a physician and received little relief. The next day the pain continued and swallowing was difficult and painful so he consulted another physician, who suspected a foreign body and referred the patient for study.



Fig. 2.—Case 1, Photograph of rabbit's rib.

Fluoroscopic examination with barium fluid and capsules was indefinite, though a film after swallowing barium fluid showed a faint outline of a bone that appeared to be coated with barium.

The patient was admitted to the hospital and esophagoscoped. A bone simulating a rabbit's rib was found to be perforating the posterior

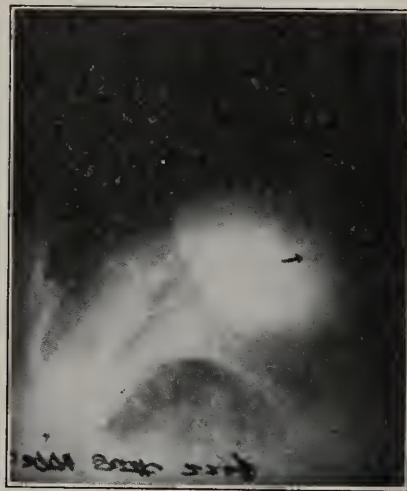


Fig. 3.—Case 2, Lateral view showing barium capsules lodged above oyster shell.

esophageal wall with one end pointing upward and free. The bone was removed and the patient had no complications, as the sojourn was short. Rest, bismuth and liquids for three days constituted the post-operative treatment. Recovery was uneventful.

CASE 2.—White woman, aged forty-five years, stated that, six days previously when eating large oysters, she was suddenly and severely seized with pain through the lower central portion of her chest. She called a physician promptly and received treatment that day and the following two with indifferent relief. The third day swallowing was very painful and difficult and the following day another physician was called. She was referred for X-ray study which revealed complete occlusion of the lower esophagus, depicting a condition not unlike malignancy or cardio-spasm before dilatation.

The patient was admitted to the hospital and esophagoscopy was decided upon; after

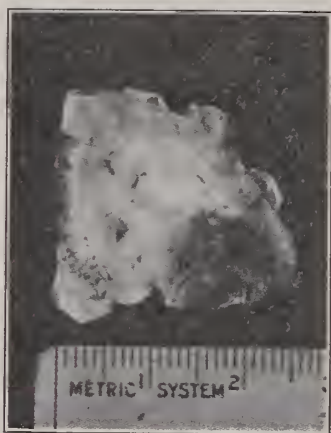


Fig. 4.—Case 2, Photograph of oyster shell.

reaching the occluded area, persistent and gentle manipulation with the esophagoscope exposed the center edge of an oyster shell. The sojourn was long (five days) and the shell was large, therefore the edge caused considerable trauma with inflammatory occlusion. The shell apparently reached its destination by adhering to the side of a large oyster before being detached.

The patient's temperature when admitted to the hospital was one hundred and ranged around one hundred and two after the shell was removed.

Post-operative treatment consisted of morphine, sterile water and bismuth for three days. The patient was discharged on the fifth day relieved.

CASE 3.—White woman, aged twenty-seven years, stated that, while eating a quail two days previously, she was suddenly conscious of pain in the chest. The next day swallowing

was painful and difficult. X-ray films were negative, barium mixture with the fluoroscope showed a partially obstructed passage way; otherwise it was negative. The patient was admitted to the hospital and esophagoscopy was done and a bone simulating a quail's rib



Fig. 5.—Case 3, shows barium lodged above small bone.

was found, one end of the bone perforating the right lateral esophageal wall and the other end free.

The bone was removed and the after treatment consisted of bismuth and liquids for the first few days. Recovery was uneventful.



Fig. 6.—Case 3, Photograph of quail bone.

#### SUMMARY

Foreign bodies of a traumatic nature in the esophagus should be removed at the earliest possible moment.

Histories of a doubtful nature should at least excite suspicion sufficient to justify esophageal study.

The earlier such cases are recognized and the offending objects removed, the less likely the patient is to encounter secondary complications.

*Professional Building.*



## BASIC PRINCIPLES IN THE TREATMENT OF SYPHILIS.\*

By DUDLEY C. SMITH, B. S., M. D., University, Va.

No claim for originality is made for this article. Ideas, opinions, conclusions and even phraseology are freely borrowed from recognized authorities on this subject.

The prevalence of syphilis makes it obligatory that all medical men have proper information regarding the treatment of this disease. All specialists and practitioners will not care to know the technical details regarding treatment of syphilis, but it is desirable that they know enough about the general principles to determine whether or not the patients whom they have referred are being managed efficiently.

The most practical way to eradicate this disease is to eliminate the foci of infection by widespread use of modern syphilotherapy. This, of course, presupposes widespread use of modern diagnostic methods. In addition to the public health problem of syphilis, the individual syphilitic patient is entitled to careful and scientific handling. The treatment of syphilis has developed to such a stage of accuracy and simplicity that a syphilologist is not essential in the majority of cases.

The curability of a syphilitic patient is greatly influenced by the duration of the disease, the pathological changes produced and the amount and kind of treatment given. The result desired is to eradicate the causative agent (*treponema pallidum*) from the patient's body with a minimum of permanent damage. The permanent injury may be a result of the disease or untoward effects of the therapeutic agents.

The reaction of the human host to the invading treponemata is much the same no matter what tissue or tissues are involved. The changes produced by the parasite and the accompanying reactions occur in a fairly orderly fashion in most instances. In acquired infections the treponemata lodge between the tissue cells and begin to multiply. Two changes of importance follow the implantation of these organisms, first the local reaction and second the spread of the parasite. It is now well established that in about forty-eight hours after the initial inoculation the multiplying treponemata have spread throughout the body,

that is long before the appearance of the chancre the infection has become generalized.

At the point of entry there occurs a characteristic tissue reaction. In brief this consists of lymphocytic infiltration and hyperplasia of connective tissue elements. The changes are mainly in the walls of and about the blood vessels with the production of an obliterative endarteritis. As a consequence of the above processes and possibly to some extent toxins elaborated by the parasites, degenerative and fibrotic changes begin. Ordinarily in three to four weeks after the inoculation this process has so progressed that a gross change can be observed. This manifestation is the chancre. All during this time the generalized septicemia with the treponemes has been progressing and shortly other gross abnormalities appear. Throughout the various tissues of the body reactions occur similar to those at the location of the primary lesions; in other words innumerable "chancres" develop.

In time the protective or immunity influences of the host are observable, the primary chancre begins to heal and the generalized lesions subside. However, the immunological efforts on the part of the human body are probably never sufficient to produce a cure. The parasites decrease in numbers but two conditions remain which contribute to the later manifestations in this disease. First, the nests of active treponemes will cause local pathology in tissue where they are located and also act as foci for repeated dissemination with clinical relapses. Second, the tissues have developed a hypersusceptibility to the organisms in consequence of which a few parasites can cause marked tissue damage. The tissue injury is due to fibrosis or scar formation, deficient vascular supply and direct toxic degeneration.

It is apparent from the above statements that there are two stages or phases in syphilitic infection requiring different types of treatment. In the early stage of the disease vigorous treponemicidal agents are immediately indicated, the object being to destroy all the treponemata before they become entrenched in the tissues. The earlier a diagnosis is made the greater the chance of accomplishing this type of cure. For this reason early dark-field examinations of all genital and suspicious extra-genital lesions are important.

In late syphilis after the organisms have be-

\*Read at the Third Post Graduate Clinic, University of Virginia Hospital, April, 1928.

come entrenched behind a barrier of fibrosis and poor blood supply the plan of attack changes. Instead of employing forcible broad-side measures it is best to vary the strategy by utilizing other methods. An attempt is made to increase the specific defensive mechanisms of the host, to break down the entrenchments of the parasite and in addition use cautiously the more powerful treponemicidal drugs. Besides the elimination of the parasites the restoration of pathological organs to normal or near normal is sought.

From a chemical standpoint there are four groups of substances to be considered in the treatment of syphilis, namely, the organic arsenicals, bismuth, mercury and iodides. The arsenicals, bismuth and mercury have both specific and non-specific actions. They also have direct destructive and resistance-building properties. The iodides are primarily fibrous tissue solvents. Best results can probably be obtained by properly combining these remedies in all cases. The weakness in one can be supplemented by the action of another.

The most important organic arsenicals are arsphenamine, neoarsphenamine and sulpharsphenamine. Each of these has certain properties which make it the drug of choice under certain conditions. Arsphenamine is the most uniform and active treponemicidal agent available at the present time. It is more stable and has a higher therapeutic index than the other arsenicals. Preparation and administration is somewhat more complicated than in the case of the substitutes. Immediate and late reactions following arsphenamine are probably fewer, certainly no more, than following the other arsenic preparations. Its elimination from the body is slower and thus its action is more prolonged. There are fewer relapses following its use.

Neoarsphenamine is neutral in reaction and therefore does not have to be alkalinized and is more soluble than arsphenamine. It is easy to prepare and administer. The injections should be given more often and the total dosage should be about double that of arsphenamine. It is less stable and less uniform in its treponemicidal property.

Sulpharsphenamine has the properties of marked solubility, stability, and non-irritating when injected subcutaneously or intramuscularly, and has about the same treponemicidal action as neoarsphenamine. It is valuable

when intravenous injections are impossible or when they are followed by untoward reactions. It is being used in congenital syphilis. Some authorities believe that the intramuscular method of administering the arsenicals is the best method and for this reason favor sulpharsphenamine.

The properties of the above arsenicals can be summarized as follows: high treponemicidal efficiency, acts rapidly making infectious lesions non-infectious quickly, some immediate and late toxic reactions, occasionally an Herxheimer flare-up, only slight renal irritation, general stimulant and only slight specific resistance builder.

Another arsenical of much importance in the treatment of the parietic form of syphilis of the nervous system is tryparsamide. Here it should be mentioned that the malarial treatment is well established as an efficient additional method in paresis.

During the last few years bismuth has acquired a definite place in syphilotherapy. The salts are given by intramuscular injections. Bismuth is inferior to the arsphenamines in treponemicidal value but is superior in this respect to mercury. It is thought to have a high specific resistance-building value. Its addition to routine treatment decreases relapses and the number of resistant cases. Because of its slow absorption, prolonged effect and moderate treponemicidal action it is valuable in the early treatment of cardiovascular, hepatic and other forms of late visceral syphilis. The local reactions following injections are insignificant. Sodium potassium tartritebismuthate and bismuth salicylate in oily suspensions are probably most extensively used but several other preparations are available. The dose is 0.1 gm. to 0.2 gm. every five to seven days.

Past experiences warrant the retention of mercury in the routine treatment of syphilis. It has a low treponemicidal value but a high specific resistance-building value. It is cheap and can be taken by the patient himself. It is highly toxic for the kidneys. Administration by inunction is probably the most popular method at present.

The iodides have very slight if any specific action in syphilis, though they have the property of assisting in the absorption of granulosomatous tissue. This action is desirable in all stages of syphilis since fibrosis is one of the



earliest changes. Oral administration is probably as efficient as any other method because of the rapidity of the absorption of the drug.

In early syphilis, rapid destruction of the germ is indicated. This is best accomplished with one of the arsphenamines. In addition to the curative value of this plan of procedure the patient is quickly made non-infectious. The arsphenamines should be followed by the remedies with the property of increasing the patient's resistance to his infection.

It is worthwhile here to outline an acceptable routine for treating these cases. It is, of course, true that the treatment for syphilis cannot be completely standardized, but a majority of early cases can be handled in a routine way. Besides the measures necessary to make a diagnosis of syphilis the patient should have a thorough and complete physical examination including an urinalysis. It should be emphasized that NO TREATMENT SHOULD BE GIVEN BEFORE A DEFINITE DIAGNOSIS IS MADE. Abnormalities in the cardiovascular system, kidneys and liver should be especially looked for. At this time the patient is instructed regarding the nature of the infection, its complications, probability of a cure, hygienic directions, manner of living, care of body, especially mouth, danger of infection and necessity for prolonged treatment. The tact in handling different types of persons shown by the physician at this time determines largely the number of cures he obtains.

There follows a satisfactory plan of procedure. The first series of treatments, in an otherwise healthy person, consists of seven weeks arsenicals, ten weeks bismuth and eight weeks mercury. Arsphenamine (0.1 gm. per thirty pounds body weight) is given intravenously on first, third and seventh days and weekly thereafter for a total of eight injections. At the time of the seventh and eighth arsphenamine injections bismuth (0.1—0.2 gm.) is given into gluteal muscles and weekly until a total of ten injections are given. Then mercury is given, usually by daily inunction, for two months. During the mercury administration iodides are prescribed. Neoarsphenamine or sulpharsphenamine in a dosage of 0.15 gm. per thirty pounds of body weight on first, third, fifth and at five day intervals for a total of seven weeks can be substituted for the arsphenamine.

Following this series the patient is gone

over again and a Wassermann is done. If there are found no contraindications a second series of treatments is given. This is similar to the series described except that the second injection of arsphenamine is omitted. On the result of this examination and Wassermann test preceding this second series, an idea in regard to prognosis may be obtained, but regardless of results of tests a complete second series is given. This covers the first year of treatment. The above scheme allows no rest periods, the administration of drugs overlaps and there is variation in the attack.

At the end of the second series the patient is again gone over, a spinal fluid examination is made and blood Wassermann is repeated. If there is no evidence of active syphilis mercury by inunction or by injection and iodides are given for three month periods followed by a month rest period throughout second year unless there develops some clinical or serological evidence of relapse. The examinations and tests are repeated following each rest period and if a relapse occurs at any time a series of treatments described above is given.

The third year is one of observation only, unless evidence of the disease becomes manifest. At three to four month intervals the condition of the patient is investigated. At the end of this time if there has been no evidence of infection during the preceding two years the patient is discharged. The appearance during this time of evidence of activity requires institution of the more vigorous measures and prolongation of treatment.

The primary and secondary stages of syphilis are followed by periods of apparent latency or by tertiary manifestation when untreated or insufficiently treated. Some observers think that a small amount of treatment, that is a "few shots", by interrupting the host's own resistance mechanism, increases the tendency to serious tertiary type pathology. Disappearance of the outward signs of the malady is no indication that the treponemes are not multiplying in and damaging other tissues. The results are fibrosis, vascular occlusion, specific hypersensitiveness and degeneration. This may be a diffuse process, as in cirrhosis of the liver; or localized, as in a gumma of the sternum. Any and usually many parts of the anatomy may be involved. One or more organs of the body may be functioning inadequately as a result. The patients are

older and often present complicating abnormalities. Danger of contagion is decreased.

In early syphilis, as suggested before, a large number can be treated in a standardized way. It is readily seen though from the preceding facts that the treatment of late syphilis is a different problem. The tissue changes influence the efficacy of the remedies. Herxheimer reactions may occur if the strongly treponemicidal agents are used first. Too rapid healing by scar formations might cause an organ to become more functionally insufficient. A lowered tolerance for and retention of the drugs are the bases for untoward toxic effects.

The aim of treatment is primarily to prevent further tissue damage by the T. Pallida, healing of the diseased parts, and symptomatic improvement; then secondarily the eradication of the causative agent.

Thorough and painstaking examinations to detect all abnormalities is essential. Every available means for improving the general condition and relieving individual dysfunctions should be utilized. General and special medical measures should be used according to the findings in the individual case.

No attempt will be made here to give detailed instruction for the various phases of treatment of chronic syphilis. In brief, specific treatment should be started slowly, given less intensively but more prolonged. The reversal of the order of the series of treatments previously described with smaller dosage and longer intervals would be a satisfactory scheme for most cases of late syphilis.

No patient should be refused treatment because he cannot pay the regular fees. The same consideration in allowing deferred payment should be given these patients as any others. Every syphilitic person is a menace to a community and should not be neglected. The cost of drugs, apparatus, etc., is at present very reasonable.

It should be emphasized: (1) That the proper bases of treatment are: (a) a specific chemotherapy, (b) increasing the patient's own resistance, and (c) pathology of the disease; (2) prolonged treatment is essential; (3) a "few shots" are often harmful; (4) explicit instructions and tactful management are necessary to get a high percentage of cures; (5) physician's fees should be based on the patient's economic status; (6) syphilis presents

an important public health problem; and (7) the technical details in the treatment of syphilis are important but not unusually complicated.

### TULAREMIA.\*

By G. G. HOWERY, M. D., Christiansburg, Va.

The recent development, severe course, and wide distribution of cases gives tularemia a prominent place in the newer diseases. My intention in presenting a paper on this subject is not to give you any new data on this disease, but with the hope that I may be of assistance to those not familiar to more readily recognize the early symptoms and thus avoid the error I came near making in my first cases.

The scarcity of available literature on this subject renders the diagnosis much more difficult than the common cases referred to in our textbooks, on account of all investigations having been of recent origin.

I have had three cases of tularemia in my practice, and saw one through the courtesy of Dr. J. G. Davis, Jr., of my town, all of which were very similar in nature, a short sketch of which I shall try to give later on in my paper.

Tularemia may be described as an acute infectious disease, possibly a bacteremia, caused by the bacterium tularense, and is transmitted to man through the bite of an insect, or an abrasion in the skin, following the handling of an infected animal, the most common one being our wild rabbit. This type of infection is known as the glandular or ulcero-glandular type. The infection may also enter through the conjunctiva when it is known as the oculo-glandular type, which form seems to be the most fatal, owing to the close proximity to the brain. There were three cases reported to have died in Lee County, Virginia, and a fourth came near dying, all in the same family, whose primary lesions were about the conjunctiva. A third type, known as the typhoid type, which has only been found so far in the laboratory workers, seems to show no primary lesions or glandular enlargements, but the blood responds to the agglutination test for tularemia and the symptoms are the same as the other types of the disease.

The history of this condition probably dates back as far as 1907, when it was reported by

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Dr. Ancill Martin, of Phoenix, Ariz. He called it "rabbit septicemia", and the infection was thought to have entered through the conjunctiva in these cases.

During 1911, Dr. Edward Francis, of the U. S. Board of Public Health, described it, calling it "deer fly fever", "rabbit fever", etc. It is to Dr. Francis we owe more than any other in the investigation of this disease. In this same year McCoy isolated the bacterium tularensis from the plague-infected ground squirrel in Tulare County, California, and it was from this county that the bacteria derived its name. The bacterium tularensis was not demonstrated in the human until 1914 by Vail. This is one of the few diseases described and investigated in full by American physicians.

*Pathology:* The primary lesion of tularemia occurs at some point of abrasion in the skin, which appears at first as a papule, to be followed later by an ulcer with a necrotic or suppurating center which has a punched out appearance. The ulcer or primary lesion is of a chronic type and is followed immediately by an enlargement of the regional lymph nodes, which may suppurate in a few weeks or they may disappear slowly, or they may even suppurate after several months have elapsed as they did in two of my cases. The liver and spleen in the animals infected have a characteristic spotted appearance; also, a similar spotted condition was found on autopsy in man.

*Incubation:* This period varies from two to ten days, averaging about three days.

*Symptoms:* The onset is sudden and is manifested by a chill, rise in temperature ranging from 101 to 105, headache, vomiting, severe aching, sweating and prostration, resembling—to my mind—a case of influenza or some acute septic condition. Fever is always present in tularemia and presents a characteristic type, giving a sudden initial rise at the onset of the disease, followed by a remission for a short period, and later return to former level, or nearly so, with a gradual return again to normal. After the first remission the patient often thinks he is well and wants to get out of bed and resume work, when the recurrence takes place. The entire febrile period lasts two or three weeks, and is followed by a slow convalescence requiring from several weeks to several months to return to a normal state of

health. In my cases it required three or four months to regain their former strength.

*Diagnosis:* Always bear in mind the importance of a correct history in a suspected case, as to whether they have handled or dressed wild rabbits, or have been bitten by a fly, tick, or some animal which may have the disease or even fed on one that is diseased, such as the cat or dog. Look for a primary lesion which, if present, will be followed immediately by enlargement of the corresponding regional lymph glands. To verify your findings after the disease has been present two weeks, send a specimen of blood to the laboratory for the agglutination test. You may also produce the disease in the guinea pig by injecting some pus from the necrotic lesion into the guinea pig, or the germ may even enter through the unbroken skin.

#### CONCLUSIONS

1. Tularemia is a recognized disease in the United States, which should be more thoroughly studied with the hope for the discovery of some specific treatment.

2. The type most generally found by the general practitioner is the glandular or ulceroglandular type, which shows varying degrees of systemic reaction, and renders it very interesting owing to the devitalizing effect on the patient.

3. While statistics show but a comparatively few deaths occurring from this disease as having been reported, yet there seems to me the possibility of more deaths having occurred and having been reported under a mistaken diagnosis.

4. The primary site of infection is similar in all glandular and ulceroglandular cases, and the glands involved may gradually disappear or suppurate but should not be surgically removed.

*Treatment:* Rest in bed is most important. One attack confers immunity in man. Treat symptomatically during acute symptoms and later tonics may be indicated. The enlarged lymph glands should be incised only after suppuration or fluctuation has been well established.

No preventive vaccine or curative serum has been perfected nor has any special drug been found effective against tularemia.

*Prophylaxis:* This should be especially emphasized. Rubber gloves should be used by

those who must handle rabbits unless done by those immunized by a previous attack. If rabbit meat must be eaten, it should be thoroughly cooked. The doctor in handling his patients, especially those with necrotic sores and suppurating glands, should use rubber gloves and strong disinfectants; so, also, should the laboratory workers.

#### CASE REPORTS

1. Mrs. C., age 42, was seen on November 27, 1927, complaining of severe headache, with general bodily aching, chills, nausea, temperature 103. There was a small abrasion on left hand, showing typical signs of infection, which later became a necrotic sore or primary lesion. There was also enlargement of the glands leading to and including epitrochlear and axillary glands, which later had to be opened, taking six or eight months to entirely disappear. On questioning, the patient gave a history of having assisted her son, who is Case 2, dress some rabbits for the table about a week previously, and, despite the clear history in these cases, I was inclined to think of this as being influenza and was not sure of my diagnosis until two weeks later when I got a positive report from the blood sent to the laboratory. I might also state that both cases in this family had the typical recurrence of the fever after one week's remission. Blood test positive—1:1280.

2. Mr. S. C., age 18, the son of Case 1, was seen the same day with the same symptoms as his mother. This patient had the primary lesion on his hand with only the involvement of the axillary glands which, however, never suppurated and, on the whole, this case was more mild than Case 1. Blood test positive—1:1280.

3. S. F., single, age 17, came to my office January 30, 1928, complaining of a languid feeling, loss of appetite, and the history of a sore on his finger, which he had thought was a felon, and which had healed and left a decided scar. On examination I found an enlargement of the epitrochlear and axillary glands. He gave the history of an acute illness during the first of December, and further questioning revealed the fact that, after killing some rabbits, he had dressed them about one week previous to his sickness. Blood test was positive and his description of his previous illness fitted exactly that of an attack of tula-

remia. Several glands in this case suppurated and this patient, although two months after he had the infection, looked like one who had been severely sick. Blood test positive—1:2560 (note higher titre).

4. This case, seen through the courtesy of Dr. J. G. Davis, Jr., presented symptoms identical to those of my patients, except that the primary lesion was located on the right leg, with a corresponding involvement of the inguinal glands, with a suppurative inguinal adenitis later on. This case is one in which infection entered through the clothing, showing in my opinion the imperative need of prophylaxis. Blood test positive—1:1280.

#### TUBERCULOUS PNEUMONIA.\*

By J. B. NICHOLLS, M. D., Catawba Sanatorium, Va.

We are all familiar with the acute exacerbations which occur at times in pulmonary tuberculosis. These acute exacerbations often mean a reactivation or extension, or both, of the tuberculosis. Often these exacerbations or "flare-ups" of the lung condition are accompanied with a pneumonic condition associated with the tuberculosis.

These acute inflammatory changes may be slight in extent or may involve a considerable portion of one or both lungs, and they are usually described in the textbooks as a tuberculous broncho-pneumonia or a tuberculous lobar pneumonia. The broncho-pneumonia is a somewhat scattered pneumonic condition which extends along the branches of the bronchial tree in one or more areas of the lung field, while the lobar pneumonia resembles the usual non-tuberculous lobar pneumonia in that there is a part or the whole of one or more lobes of the lungs involved. The broncho-pneumonic type is the most common.

These pneumonic conditions may occur with a patient at absolute rest in bed, or at times when the patient is on a limited amount of walking exercise; and, of course, the patient with pulmonary tuberculosis is more susceptible to a condition of this kind when he is up and going about and not taking any rest in bed during the day. Non-tuberculous pneumonic conditions are rather rare in patients under treatment in the Sanatorium.

As I understand the pathology of the condition, it is due to the tuberculous process

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where there may be few or many tubercles surrounded by a pneumonic inflammatory field. It is a reactivation of the body tissues, which accompanies the secondary infections. The body tissues do not show this type of inflammatory reaction to the tubercle bacillus in the primary infection. There is an exudate together with a cellular infiltration, which may be scattered somewhat throughout the lung fields, along the bronchi, giving a hazy appearance in the X-ray plates, due to the exudative process, with the mottled areas of increased density due to the presence of tubercles surrounded by the pneumonic process. The tubercles are not usually scattered throughout this pneumonic process in the beginning, but are located somewhat near the center of same. Later on the pneumonic area may become invaded with tubercles, due to the extension of the bacilli to the surrounding inflamed area.

The pneumonia is usually of a bronchiogenic origin, in that as a rule it is not spread by the circulating fluids, but is due to the aspiration of the tuberculous exudate and pus containing the bacilli along the bronchial tubes in one or several portions of the lungs.

The physical findings in these cases may be misleading in that often there are slight areas of broncho-pneumonia or even areas of lobar pneumonia which may be overlooked. Time and again we do not get any physical findings sufficient to enable us to make a diagnosis from the physical examination alone. When this inflammatory process is started, there may be moist rales over the area of involvement, somewhat scattered in the broncho-pneumonic type, and localized in the lobar type. In some cases the lobar type may give the usual physical findings of a lobar pneumonia, in that there is rather marked dullness together with harsh or bronchial breathing and increased whispered voice, which condition can be outlined fairly well from the physical. I would say, though, that this is the exception rather than the rule in these cases.

The X-ray examination of the chest is of more help in determining definitely what has taken place in the lungs, in that we get a picture of the somewhat scattered mottling along a part or parts of the bronchial tree in the broncho-pneumonic type, while there is more marked density and consolidation and caseation in the lobar type. As the lesion

varies in extent and in density, as shown on the X-ray plate, the symptoms, also, may vary considerably, and the symptoms may be at considerable variance with the physical and X-ray findings in that there may be a somewhat wide spread broncho-pneumonic involvement, or even an involvement of the lobar type, without the patient having the marked symptoms which would be expected.

The range of symptoms varies all the way from practically none or very slight symptoms to an occasional picture of the usual lobar pneumonia, with markedly increased respiration, rapid pulse, some pain in the chest, and cyanosis, with marked elevation of temperature, ranging from 102 to 104. You need not necessarily look for the cyanosis in the tuberculous pneumonias. We should look for a pneumonic condition if the patient is getting along with practically none or slight elevation of temperature, and there is a sudden rise. Sometimes this temperature will go up from normal limit to 103 or 104 within a few hours. While we realize that the patient is ill, it is not necessarily a critical picture, from the aspect of the patient, during the beginning of this period. This temperature will often range from one to four weeks, remaining above normal all the time. The highest temperature ranges from 102 to 104, and there is no sudden crisis with the drop of temperature and the change in appearance of the patient. At first the temperature remains fairly high during the whole twenty-four hour period, and, later on, beginning about the second or third week, it becomes a more remittent type of fever.

Usually after four to six weeks, this temperature commences to decline some, and by that time you can see that there has been a considerable decline in the patient's condition, in that he will commence to look pale; he will show some emaciation, and he will be weak, and, at times, have rather marked night sweats. The expectoration, also, increases some, but not necessarily to any marked degree during the first one or two weeks. The leucocyte count is not necessarily elevated above the normal range, although there may be an increased lymphocytosis. When the expectoration commences to increase, there are often numerous tubercle bacilli in the sputum.

What must we look for so far as lung:

changes are concerned in a condition of this kind, and what must we do?

First, we will consider the lung changes. It is not unusual for the inflammatory exudate to be gradually absorbed and the lung area to gradually clear and return to a somewhat normal appearance. Fortunately, this does happen at times in that, after a few months, with the gradual clearing of the inflammation, fibrotic changes appear in the lungs, sometimes without any apparent destruction of lung tissue. Unfortunately, in many cases, we do not get such a nice turn of affairs, with apparent recovery of the patient. The area or areas of consolidation go on to caseation, with ulceration and cavity formation. In addition to this, there may be a spread of these areas of consolidation, with increased rapidity of decline of the patient. This is what we are told in the textbooks to often suspect, and, while it is true, there are numbers of times when it does not happen. Following ulceration and cavity formation, the condition may end in hemorrhage, which causes the patient to be still more seriously ill.

What treatment is indicated? There are no specific drugs other than what your medical experience would call for as conditions arise.

As to the feeding of the patient, this should be determined by the condition of the patient from day to day. The patient with high elevation of temperature and marked symptoms, cannot, of course, take care of the solid foods well. Liquid nourishment and soft foods should be given as far as possible to help maintain body strength and prevent emaciation and weakness. As the temperature declines and the patient's digestive processes will take care of it, the return to solid food can be allowed. The effort all along is to allow the patient, so far as possible, as much food as can be taken care of comfortably, but at the same time, we must not overdo the thing.

We have to rely chiefly on absolute rest in bed. Even if the symptoms would not seem to indicate it, if we suspect that a pneumonic process is present, it is necessary that the patient remain quietly at rest in bed. He should remain at this absolute rest in bed indefinitely, and he should be allowed to get up only when the symptoms, physical and X-ray findings indicate that the lesion is clearing, or has cleared enough to enable him to do so without

causing any reactivation or harm to himself. Absolute rest in bed for months at times will often bring about a clearing of the process, without any destructive changes in the lung tissue. No definite limit of time can be stated, for it all depends on the progress of the patient, and that is what we should be guided by.

Pneumothorax should always be considered in these cases, and where the patient is a suitable case for pneumothorax, collapse of the lung will often bring about improvement and results, in that it prevents the absorption of the toxins, the inflammatory process subsides more rapidly, and the patient improves much sooner than he would otherwise. When there is consolidation and caseation, in which case you can often look for ulceration with cavity formation, if one lung is at all suitable to stand the strain, collapse of the lung should be carried out. A collapse of the lung will often prevent cavity formation, in addition to bringing about a relief of symptoms, with a more rapid recovery of the patient.

During the acute stage of the disease, with active looking infiltration in the lungs and with moderate or severe symptoms, the patient is not usually suitable for thoracoplastic operation.

I think that the development of these pneumonic areas is often the cause of our being deceived in the prognosis of the case. Even when the patient is apparently getting along all right, this condition may develop and cause a marked change in the patient's condition within a short time. It accounts for the more rapidly progressive condition, when we had previously felt from our observation and examination of the patient that the prognosis was rather good. It accounts, also, for the more marked extension of the condition, which we ultimately find, than we suspected, the X-ray showing that we have a much more extensive and serious condition to contend with than we felt was indicated from the physical examination, symptoms, or general condition of the patient.

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#### KEEP WELL!

No matter who you are or what you do, the biggest asset you have in life is your health. It gives you the ability and power to do things. Take good care of it.—*Selected.*



## TREATMENT OF MALIGNANT DISEASES OF THE ORAL CAVITY.\*

By S. W. BUDD, M. D., Richmond, Va.  
McGuire Clinic.

During the past two decades I have watched surgery with its radicalism and ray-therapy with its conservatism struggle for supremacy in the treatment of malignant disease in the oral cavity. In spite of a tremendous expenditure of thought and energy on the part of a host of observers there has been but little improvement in the methods for the eradication of this dreaded disease. The bigotry amongst surgeons and ray-therapists is largely responsible for this state of affairs. To me a radical treatment tinged with conservatism or *vice versa* offers the only solution to this vexed question.

Theoretically, cancer of the mouth in the hands of a skillful surgeon should respond with some degree of certainty to radical surgery provided the surgery is radical enough. Yet it is not always possible to remove the diseased tissue no matter how painstaking or how extensive an operation may be. It is indeed disappointing to see a radical operation almost to the point of mutilation of the patient followed by a return of the disease.

There are so many factors that influence the treatment of malignant disease of the mouth that it would be impossible to enumerate them. The extent to which the disease has progressed, the location of the growth and metastasis, the character of the growth, the temperament and the social status of the patient are perhaps the most important. In other words, to use a shop-worn expression, every case presents a problem in itself.

It is well nigh impossible to describe the cases that react best to surgery, or to surgery and radium or to a combination of surgery, radium and X-ray. Local growths without gross evidence of metastases respond very satisfactorily to surgery, or to radium therapy, or a combination of the two methods. If metastases are present we are confronted with an entirely different problem and there is no field in medicine where a nicety of judgment is more demanded. It is imperative that the surgeon and the ray-therapist consult before a decision as to the method of treatment to be made. If the disease is widespread, extensive surgery is neither safe nor humane. The mutilations that follow radical surgical proce-

dures about the face serve only to make more uncomfortable a very miserable individual and it is very questionable if we materially prolong life.

We have adopted a conservative attack in these cases, and we believe that our results are as good or even better than if we attempted radical surgery. We rely on electric coagulation, when perfectly safe, and radium emanations locally, and X-ray and radium implants into the metastases. We recognize the importance of block dissection of the glands followed by X-ray and radium implantations, but recently we have not practiced this method of attack—perhaps our results would have been better had we done so.

For simplicity of record, Dr. W. L. Peple and myself have found it very convenient to group our oral cancers into four groups, depending on the extent of the involvement. The classification is very similar to the one now used and described by Dr. Peple in a paper, "Malignant Diseases of the Cervix", namely:

CLASS I. Precancerous conditions.

CLASS II. Lesions without apparent metastases.

CLASS III. Lesions with a diameter not exceeding three cms. with moderate metastases.

CLASS IV. Large growths with extensive metastases.

This grouping enables us to state the expectancy in oral cancers and it will be invaluable in event a statistical study is desired.

CLASS 1.—In Class I we place the precancerous lesion, such as leucoplakia, chronic ulcers, cracked lip, and irritated papillomas. These lesions are not malignant and may never be so, but it is wise to clean them up if possible, instead of waiting for developments. Oral hygiene, the extraction of a tooth, a cauterization or a small application of radium by means of a plaque is generally sufficient to remove this type of lesion.

CASE REPORT: Mr. C. E. T., farmer, age 53, came into the Clinic June 23, 1924, complaining of a sore lip. He had been suffering with a cracking lip for years but always the lip would heal. This time a sore appeared during the spring and has grown steadily in size. Recently the lip has bled, and two or three nights ago he had a profuse hemorrhage following a slight trauma. The patient was an inveterate smoker, but for the past two or three months

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he has not smoked. The ulcer on the lip was about one cm. in diameter and was covered by a scab. The edges of the ulcer were slightly elevated above the surface of the lip. There was a moderate induration about the ulcer. There were no cervical glands. The Wassermann was negative. The patient was treated with a 25 mg. double strength plaque unscreened for one hour. There was considerable reaction following the treatment which lasted about six weeks. He was seen two months after treatment and at that time the ulcer had completely disappeared. There has been no return of the ulcer.

**CLASS II.**—In Class II we place ulcerative leucoplakia and superficial local growths that are definitely malignant but show no signs of metastases. These lesions are treated locally. Destruction or removal of the growth will invariably cure it. It must be borne in mind that early metastases may take place without gross evidence, and for safety even though the growth is destroyed locally we advocate X-ray therapy to the neck.

**CASE REPORT:** Mr. H. E. G., age 39, was seen in 1921. He complained of a sore mouth. There had been spitting up of small quantities of blood. He gave history of syphilis in 1908, and he also stated he was a heavy user of tobacco. The entire hard palate and a large part of the soft palate were covered by a leucoplakia area, the center of which showed an ulcer about  $3\frac{1}{2}$  cm. in length and 2 cm. in width. The edges of the ulcer were elevated and somewhat undermined. The base of the ulcer bled freely with the slightest trauma. The Wassermann test was negative. A portion from the edge of the ulcer showed a typical squamous cell epithelioma. There were no cervical glands. The patient was treated with an applicator to fit the roof of his mouth and 250 milligram hours were given. The radium was screened with brass and rubber. He received two similar treatments, one two months later and the second six months later. The ulcer disappeared. There has been no return of the condition.

**CLASS III.**—In Class III we place papillary or ulcerative growths having a diameter of from 1 to 3 cms. that show a moderate glandular metastasis. This class requires most active treatment, and it is in the treatment of this class that surgeons and radiologists have locked horns. Removal of the growth, if re-

moval be possible either by cautery or by knife, is desirable before radium treatment is instituted; but extensive surgery such as removal of the tongue, resection of the jaw, removal of a cheek and other mutilations are in our opinion doubtful procedures and results do not justify them. Block dissection of the gland is also a debatable practice, yet I believe it well to cut down on the glands and, if there is not too much fixation of the glands or if there is not too much danger incurred to the patient, to remove as many as possible. Exposure of the glands affords an admirable opportunity to implant radium seeds in those that cannot be removed.

It is our practice in Class III carcinomas to destroy the growths with a cautery and to implant radium seeds in the growth occurring in the soft tissues or to apply radium element to those in the hard tissues. We are fortunate to have in the McGuire Clinic Dr. J. B. Williams, who makes admirable impressions of the alveolar ridge and hard palate out of a special preparation that does not generate secondary rays. With these impressions we are able to hold the radium in close contact with the growth until an adequate dose can be given. We give one millicurie of radon for each c.c. of growth, and our element treatments vary from 1,000 to 2,000 milligram hours.

**CASE REPORT:** Mr. J. J. J., clerk, age 49, came to the Clinic May 21, 1926, complaining of sore tongue. The sore began about two months previous to admission with a small sore on the under surface of the tongue on the right side, and has grown steadily and rapidly. He has the habit of biting his tongue and frequently wakes at night from pain induced by tongue biting. There has been no bleeding or other symptoms other than a loss of weight. The growth was in the floor of the mouth and extended to the under surface of the tongue on the right side. The ulcer measured  $2\frac{1}{2}$  cms. by 2 cms. The edges of the ulcer were ragged and elevated. The base of the ulcer was covered by a gray membrane. The ulcer bled freely with trauma. There were palpable glands at the angle of the jaw. His Wassermann test was negative. Microscopic examination showed a squamous cell epithelioma Grade 2. The patient was treated with six radon seeds of 2 millicuries each. There was considerable reaction following the radium treatment which subsided in two months. The



ulcer entirely disappeared. The glands of the neck received two treatments with high voltage X-ray. There has been no demonstrable return of the condition.

**CLASS IV.**—In Class IV we place the advanced cases of carcinoma of the mouth. Cases with extensive ulcerations, with invasion of the bones of the mouth, with large metastatic glands, with salivary fistulae already established, with cachexia, wasting and other evidence of toxemia resulting from the disease, are included in this group. Type IV cases are hopelessly involved, and nothing can be done to remove the disease, and treatment in this class must be along palliative lines. Sometimes a cauterization, especially with electrical devices, or an implantation of the growth with radium may cause a temporary cessation of suffering. With the use of morphine and with the methods mentioned patients can be made fairly comfortable for months.

**CASE REPORT:** Mr. J. H. G., a carpenter, age 58, came to the Clinic June 13, 1926, complaining of a sore mouth. He noticed a rough place on the right side of his cheek about eight months ago. It was thought by his local doctor that he had Vincent's angina and was treated for this condition for two or three months without improvement. He also received a paste treatment four or five months that aggravated his condition. He lost weight and there has been considerable pain in the cheek especially when he eats. There has been blood spitting almost constantly for the past two or three months, and on two or three occasions he has had small hemorrhages.

About four months ago glands appeared on the right side of his neck that have grown steadily. His ulcer on the cheek on admission was about 4 cms. in diameter. The edges were raised and there was a deep crater covered by a membrane. The ulcer bled with the slightest trauma. A section of the growth showed it to be a Grade 2 epithelioma. The glands in the neck were located near the angle of the jaw and along the deeper veins. The largest gland was about the size of a bantam egg. A stain from a scraping of the surface of the growth showed no Vincent's. His Wassermann was negative.

He was given seven hundred and fifty milligram hours of element screened by brass and rubber and held in place by a special applica-

tion and also six millicuries of radon in the lower angle of the growth where it spread over the tongue. Two months later he received twelve millicuries of radon, and four months later five hundred milligram hours of radium. He had three series of X-ray treatments to glands of the neck. There has been considerable pain associated with his condition, but he has been able to stick at work.

The patient was in for observation about two months ago with a local return of the disease. He was cauterized and treated with ten millicuries of radon. The disease now has progressed since we first saw him but he can still work. We feel that this man has been given two years of comfort. We little expected him to live more than six months when we first saw him.

Sepsis invariably follows in the wake of an oral cancer and it should be as energetically combated as the growth itself. Impaction of food should be carefully guarded against. With a large sore in the mouth, efforts of deglutition are limited and food has a tendency to accumulate in ulcer craters and in the alveolar fossae. This food should be removed two or three times daily, and the mechanical cleansing of the mouth should be followed by copious baths with salt solution or some non-irritating antiseptic.

A careful microscopic examination of the growth should always precede all forms of therapy for malignant disease of the mouth. Already we have had several cases that were sent in for cancer that proved to be inflammatory conditions. One of these was a chancre of the lip that responded beautifully to anti-syphilitic measures, and the others were simple infections. The importance of a correct diagnosis cannot be too strongly emphasized. Often a chancre, or a gumma, or a tuberculous process, or a slough following Vincent's angina, or a slough following the use of too much phenolphthalein or other phenol derivatives, may be confused with malignant disease of the mouth. Angiomas of the soft parts and osteomas and epuli in the bony portion of the oral cavity have also been erroneously diagnosed cancer.

Probably one of the most important phases in microscopic studies of oral cancer is the proper assortment of cases into the several grades proposed by Broders. Differentiation undoubtedly bears a very definite relation to

malignancy although we should not lose sight of the fact that natural resistance and certain defensive measures that nature has endowed us with will retard the growth no matter how low it will scale in the process of differentiation. A very malignant tumor may run a prolonged course, or a relatively benign growth with the breaking down of the defensive barriers may run a very rapid one.

In looking over the records of our cases with a view to analyzing them, we found it impossible to correlate the records of two or three years ago with those of the present day. At that time no classification of the extent of the disease was attempted. Cancer cases were divided into hopeful and hopeless cases. The descriptions of exact amount of involvement were inadequate. There was no attempt then to grade malignancy. Cancers were just plain cancers and were grouped together. Naturally the percentage of cures was high. Not enough time has elapsed since we adopted our classification of oral cancers to give statistics that would be of value. But for a two year period, regardless of the location of the growth and the grade of malignancy of the tumor, it is our belief that the expectancy in Class I, or the precancerous conditions, should be at least 95 per cent; the expectancy in Class II, or local growths, should be approximately 75 per cent; in Class III, or moderately advanced cases, less than 25 per cent; and in Class IV, or advanced growths, less than 5 per cent. When three or four years have elapsed, we hope to have statistics that will be of real value—statistics that will take into account our classification, Broder's grading of malignancy, and the location of the growth.

In conclusion we would like to emphasize several points:

1. The importance of an early diagnosis of cancer of the oral cavity. This can be done only by educating our patients to present themselves for observation whenever a sore in the oral cavity does not heal very promptly.

2. The value of classifying cancer of the oral cavity according to the amount of pathology—in order to improve statistics and to give a lead as to expectancy.

3. The importance of careful microscopic examinations of the growth before instituting our treatment.

4. The importance of combating sepsis, especially in advanced cancers.

## URETHRAL INFECTIONS.\*

By W. W. S. BUTLER, JR., M. D., Roanoke, Va.

This subject has been selected because 80 per cent of these cases first come to the general practitioner. No disease produces more distress and childless homes nor more preventable operations than this. The average patient is too apt to be dismissed with a prescription for a syringe and some astringent injection and told to return in a week.

The importance of detailed care and of drinking a plenty of water cannot be put over except by frequent personal talks, and the necessary gentleness in use of local drugs had best be shown by daily visits for some time. It is not as important to make a slide as is the dark field in every ulcer or abrasion, but I will cite a few instances in which this step has been omitted. A boy, 18 years old, came in, with some discharge, and marked frequency and burning which he had had for six months. A slide showed many staphylococci and on cystoscopic examination a stone was found in his bladder and inside the stone a wax plug. This boy says he had tried to prevent wetting the bed at night by pushing a wax plug in the urethra. Another young man with a persistent mild urethritis proved to be a large infected hydronephrosis, and the urethritis cleared up when the kidney was removed. An infected diverticulum may also set up a urethritis. These and stone more often show staphylococci in a slide. Where there is a urethritis associated with a pyelitis, the colon bacilli are more often present, and not infrequently tuberculosis. A urethritis in which the pus shows organisms other than the gonococcus is practically always secondary to a focus which may be in the kidneys, bladder or adnexa and should be located by the usual methods of urologic diagnosis.

For the local treatment, the number of drugs testifies that there is no outstanding one. The most important feature is gentleness, and to secure this and to put over to the patient the importance of detailed care of himself, he should be seen by the doctor every day for the first ten days. My experience has been that one treatment a day gives the most satisfactory results. The drug which you use can exercise its bactericidal effect at most only a few hours and, except at the very start, the bacteria are too deep to be reached; it is the

\*Read before the Southwestern Virginia Medical Society, at Wytheville, Va., September 27-28, 1928.



local tissue reaction which gives the result. Potassium permanganate has been used longer and the profession has come back to it more than to any one drug. Occasionally, particularly in a long standing infection, a single irrigation clears up the process. Of the drugs with the high bactericidal effect, mercurochrome and acriflavin are most in use at present. Neither has proven satisfactory to me. In a recent issue of the *Journal of Urology*, excellent results have been gotten with Boot's acriflavin used by a special technique. A 1-1000 solution when used within forty-eight hours and kept up twice daily for a week is reported as an unfailing and almost immediate relief in acute urethritis. The patient must be on his back and the solution is held in with adhesive and cotton so that there is no pressure to exclude any portion of the urethra from the acriflavin. This technique assumes that all the bacteria are reached and does not depend on nature to cure the process. I went to a great deal of trouble to get the special English preparation of acriflavin recommended, but regret that I could not get any such results with it. Mercurochrome also has produced too much irritation. If no local treatment is used, almost 100 per cent posterior infections will occur. A mild silver preparation has given the best results for me. Five per cent argyrol, preceded by a mild irrigation with permanganate when used once a day, will confine the infection to the anterior urethra in about half the cases. Pelouze, in his recent book on this subject, reports better results.

A plenty of water to drink is of more consequence than any special article of food. Other than to avoid alcohol and highly seasoned food, there are no special directions as to diet so long as the digestion is not upset by food or drugs. In a posterior infection, less water and a sedative will increase the intervals between voiding and allow rest to the inflamed area.

The treatment of chronic urethritis resolves itself into a determination of the cause—whether it be a focus which continually lights up, or a mild persistent urethritis. In the former, the gonococcus is usually present, though in the latter condition it has usually prepared the way for secondary bacteria to persist. Trauma does the most harm whether it be by instruments used on an inflamed urethra or by too strong drugs or too frequent

use of mild applications. Irritation from alcohol or sexual excitement must be eliminated. The focus which takes the longest to heal is the prostate, and its treatment should last over several months, with rest periods, after which the expressed secretion should be examined microscopically for pus. Fortunately, the urethral follicles are shallow and heal or are obliterated by scar tissue. A common source of recurrent urethritis is the para-urethral follicles which are situated just inside the meatus. These can be obliterated by cautery, with acid, or with fulgurating needle, but take numerous efforts, being very persistent, and are frequently associated with mild hypospadias. The scar tissues due to an old area of infiltration or granulation in the urethra keep up a persistent urethritis and are associated with a prostatitis. These will be overlooked on passing a sound, but an acorn bougie as large as the meatus will admit, will locate these on withdrawing it, and the condition will not clear up until dilatations are also used.

Tuberculosis, loss in sleep or over-work, which lower the vitality, will cause a persistent mild urethritis which will clear up only with the general condition.

In this brief paper outlining my personal experience in treating this very common condition, I have tried to stress the fact that we assume a serious responsibility to the patient and to society when we treat any form of urethritis. Mild drugs with a minimum of trauma in acute stages and a close observation of the patient to assure his understanding and cooperation over a long period of time are a necessity for the best results.

*Shenandoah Life Building.*

### NASAL ACCESSORY SINUSITIS.\*

By T. A. POOLE, M. D., Washington, D. C.

The medical profession has for many years recognized the importance of nasal sinusitis, not only as a pathological entity, but in its casual and close relation to the secondary infections elsewhere in the body.

The symptoms and course of this ailment are well-known; at best, general and local treatment has too often been unsatisfactory.

These far reaching and harmful results to adjacent structures may be better understood

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when we consider the intimate relation between all the nasal sinuses and adjacent structures.

The severe and widespread epidemic of influenza in 1918 was followed by an aftermath of sinusitis. Many methods of treatment were involved, including surgery, but too many cases, even in the hands of the most skilful, whether by local, medical or surgical treatment, were frequently attended by an undesirable result.

Six years ago while in the clinics in Vienna with Dr. Alexander, Dr. Fisher and Dr. Beck, the writer was attracted by the mechanical treatment there employed, and at once began the development of the present idea, which is a modification of the old Politzer method of inflation, plus the process of gradual dilatation, infusion of medicated vapor, and aspirating or sucking pus, mucus or debris from the eustachian tubes, middle ears and sinuses. With this method the eustachian tube is opened, gradually and continuously, with vibratory massage of the drum though the external auditory canal cannot be of benefit unless the middle ear has been restored to normal. To do this, one must open the eustachian tube, and this method of treatment, to which your attention is now invited, will accomplish it in a majority of cases. All of these cavities are sprayed with an oily medicated vapor by this simple device, which also provides a thorough, gentle and safe suction—a perfect drainage of these numerous cavities, which is of primary and paramount importance not possessed by other methods.

In the development and perfection of this apparatus I desire to give credit, not only to the ideas suggested in Vienna, but also to the helpful advice from members of the staff of the New York Eye and Ear Hospital, Wills Hospital, London, England, and The Central Hospital, Lausanne, Switzerland.

In tabulating the history of 256 cases of positive chronic sinusitis treated in the past year, I have gleaned this information: of this number, 170 had ear, eustachian tube and hearing involvement; 149 had some eye or eye muscle disturbance; fifty-five had some asthmatic or bronchial involvement. It will, therefore, be noted that we have a widespread and serious problem to solve. In an effort to combat these conditions, I have evolved a method of treatment which, you will agree, should greatly alleviate many of these cases.

This device, to sum up, has the following functions: spray with medicated oil, massage, and use good suction. As formerly stated, it is a modification of the Politzer method of inflation which we have all used for many years. This new method utilizes the closing of both nostrils with the nasal tips, which has been found to be very important, both for sinus medication, vibratory massage, inflation and suction. The following three history charts, one of each type of cases mentioned above, will further illustrate the value of this method:

Mr. R., age 22, had all of the symptoms of both minor and important sinusitis for ten years, getting worse each year, until the fall of 1924-25, when he had many operations. We opened his maxillary antrum twice; since that time nothing has been put in his nasal sinus except oil in some form, as I seldom irrigate with an antiseptic but always use the oil spray treatment. He is still on my list but I seldom see him for treatment for he has improved so much that he feels he is cured.

Mr. C., age 32, was seen August 10, 1928. He had marked sinusitis eye symptoms, and complained of catarrhal headaches since boyhood for which he had been treated a long time. He had had glasses adjusted, hoping for improvement in vision. Had five upper jaw teeth extracted. Fixation point eight inches: now, after treatment, fixation point five inches. Eyesight much improved; no headaches, feels better, color good, can do much more work and does not tire as easily, and can now use his eyes as much as he likes without discomfort. Declares he is well; I seldom see him.

Mr. H. had abscess in right ear, contracted during Spanish-American War, followed by purulent discharge, with continual noises in that ear for past thirty years. He was discharged from Army and given a pension due to the ear trouble. He can now hear equally well in both ears, no noises, no discharge and feels perfectly well.

These cases will illustrate that satisfactory results, both to patient and physician, may be obtained by this mechanical and therapeutic method of treatment.

In the 256 cases the records disclose it was necessary to perform but very few operations. Some may be further benefited by operations; however, very satisfactory results have been obtained without surgical interference, as will be noted.



Gentlemen, I thank you for your kind and courteous attention to this old, dry and sometimes "moist" subject.

*Medical Science Building.*

## ROLE OF URETERS IN DISEASE OF THE FEMALE PELVIS.\*

By GILBERT FRANKLIN DOUGLAS, M. D., Birmingham, Ala.

In discussion of this subject, let us consider, first, the anatomical structure with which we are dealing that we may have a clearer conception of the true pathology, symptomatology and diagnosis of diseases affecting same.

The ureters are two tubes which conduct urine from the kidneys into the bladder, commencing within the sinus of the kidney by a number of short truncated branches, the calices or infundibula. These unite either directly or indirectly to form a dilated pouch, the pelvis, from which the ureter, after passing through the hilum of the kidney, descends to the bladder. Calices are cup-like tubes encircling the apices of the Malpighian pyramids. Calices vary in number from eight to eighteen. These calices verge into two or three tubular divisions which, by their junction, form the pelvis or dilated portion of the ureter. The portion where the pelvis merges into the ureter proper is found opposite the spinous process of the first lumbar vertebra at which point it is accessible behind the peritoneum.

The ureter proper is a cylindrical membranous tube about sixteen inches in length and the diameter of a goose quill, same extending from pelvis of the kidney to the bladder. Its course is obliquely downward and inward through the lumbar region into the cavity of the pelvis, where it passes downward, forward and inward across the cavity to the base of the bladder into which it opens by a constricted orifice, after having passed obliquely for nearly an inch between its muscular and mucous coat. The lower part exhibits a spindle-shaped dilatation.

**Relation:** The ureters rest upon the psoas muscle, being covered by the peritoneum and crossed by branches of mesenteric arteries. Opposite the first piece of sacrum, it crosses either the common or external iliac artery and vein, lying behind the ilium on the right side and behind the sigmoid flexure on the left. In the pelvis it enters the posterior false ligament of the bladder. In the female the ureter

is to the inner side of the uterine artery. At the wall of the pelvis, it passes forward and inward below the posterior layer of the broad ligament, running through the parametrium, then along the side or neck of the uterus and upper part of the vagina, being in contact with the anterior and lateral vaginal wall, and is crossed anteriorly by the uterine artery. At the base of the bladder the ureter is situated about two inches from the one on the opposite side.

**Structure:** The ureters are composed of three coats—(1) fibrous, (2) muscular, (3) mucous.

1. The fibrous coat is the same throughout the entire length of the duct, being continuous at one end with the fibrous capsules of the kidney at the floor of the sinus, while at the other it is lost in the fibrous structure of the bladder.

2. The muscular coat of the ureter in the pelvis of the kidney consists of two layers, longitudinal and circular. The longitudinal fibers become lost upon the sides of the papillae at the extremity of the calices, while the circular fibers may be traced surrounding the medullary structure in the same situation. In the ureter proper, muscular fibers are arranged in three distinct layers—(a) external, longitudinal. (b) middle, circular, and (c) an internal layer, which is less distinct.

The mucous coat is smooth and presents a few longitudinal folds which become effaced or smoothed out by distention. It is continuous with the mucous membrane of the bladder below, and its epithelium is of peculiar character and resembles that found in the bladder. It is known as transitional epithelium, and consists of several layers of cells of which the innermost—that is, cells in contact with the urine—are quadrilateral in shape, with concave margins, and thin outer surfaces into which fit the rounded ends of the cells of the second layer. The intermediate cells, more or less, resemble columnar epithelium and are pear-shaped, with round internal extremities which fit into the concavity of cells of the first layer, while the narrow external extremities are wedged in between the cells of the third layer. The external or third layer consists of conical or oval cells which vary in number in different parts and present processes that extend down into the basement membrane.

Arteries supplying the ureter are branches from the renal, internal iliac and inferior

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vesical. The nerves are derived from the inferior mesenteric and pelvic plexuses.

Lymph vessels from the ureter come off and terminate in the juxta-aortic and adjacent glands.

The ureter shares with the renal pelvis the pathological conditions to which the latter is liable. Suppuration, T. B., stone, and neoplasms inevitably involve the duct of the kidney. Congenital dilatation of the ureters is generally regarded as one of great rarity and passes entirely unnoticed in the ordinary textbook. It is probable that it is more common than is usually supposed. Boyd claims it is found in male children. He reported two cases, the ages of which were two and one-half and twelve years, respectively, the symptoms being those of gradually increasing urinary obstruction with dilatation of the bladder, while the ureters showed an accumulation of residual urine and failure of renal function. The greatly distended bladder walls eventually showed extreme hypertrophy. Some of the other pathological conditions that we find are stricture, which takes place at or near the lower orifice, but is seldom complete. All degrees of constriction may be seen, the most pronounced type resulting in a cyst formation of the vesical portion of the ureter. Strictures of less degree may not be followed by changes in the vesical portion of the ureter, but give rise to dilatation of the ureter as a whole. The same factors which cause stricture of the urethra may also affect the ureter—that is, infection, trauma, etc., although gonococcus infection of the ureter is uncommon.

Ureteral strictures of inflammatory origin are dilatable and are diagnosed by inability to pass the ordinary ureteral catheter, being accompanied by extreme pain as the catheter approaches the point of stricture. Urine which escapes through the catheter contains pus and blood. Dilatation may take place as the result of pressure on the ureter, or anything which obstructs the escape of urine into the bladder. Such conditions are accompanied by pain and symptoms referable to the kidney of the side affected.

The causes of long continued dilatation of the ureter may be classified as follows:

1. Spinal diseases that cause lack of innervation to the muscular wall of the ureter produce relaxation and the ureter becomes flabby. Dilated conditions thus resulting are almost

always bilateral and are more or less serious in consequence.

2. Back pressure from obstruction in the urethra.

3. In the majority of pregnant women many observers have found that the ureters are dilated due to direct pressure of an enlarging uterus upon the ureters and to a disturbance of innervation of the muscle walls of the ureters. Examination of the ureter mouth does not show much change. Pyelitis often develops in these cases.

4. Mechanical obstruction is probably one of the most frequent causes of dilatation. If obstruction is not complete, dilatation follows; but when obstruction becomes complete, the functional activity of the kidney is lost. The ureter shares later in the dilatation, since the pelvis of the kidney dilates first. If disease conditions occur in the lower one-third, some changes may be noted in the bladder, but, as a rule, the conditions are entirely mechanical. The flow of urine from the ureteral opening is seen to be diminished and occurs at irregular intervals.

5. Inflammatory disease of the ureter may be a cause. This occurs most frequently in the vesical portion, due either to extra- or intra-ureteral conditions. In tubercular diseases of the ureter the dilatation is irregular owing to multiple stricture and uneven involvement of the tube.

There are three distinct types of obstruction:

1. Obstruction due to anomalous renal blood vessels which are soft: obstruction usually 25-27 c.m. from orifice of the ureter.

2. Obstruction due to tuberculosis; chief obstruction usually at or near vesical end. There are usually multiple points of obstruction due to multiple stricture; may occur at any point in course of the ureter. Changes in vesical mucous membrane surrounding opening are characteristic. Tubercle bacilli and pus are also present in the urine.

3. Obstruction due to calculi impacted in or descending the ureter. 30 per cent of cases show stone arrested near pelvis of the kidney; 15 per cent near brim of pelvis; and 55 per cent show stone impacted in vesical portion of the ureter. At the point where the stone becomes impacted the ureter is inflamed, swollen and sensitive, and may become ulcerated. Above the stone it is dilated; below the stone it is swollen, hyperemic and secretes more readily.



There may be a sudden bilateral anuria due to reflex secretory inhibition. There may be tenderness along the line of ureter.

If stone is lodged below brim of pelvis, vaginal or rectal examination may aid in diagnosing trouble. If stone is impacted in lower one-third of ureter, it usually causes considerable change at meatus, with some protrusion of mucous membrane due to swelling and edema.

Ureteral fistulae are usually found near the uretero-vesical junction if caused by infection or necrosis of ureter. Most are caused by operation or traumatic injury to the ureter, and a fistula resulting from traumatism may occur at any point in its course.

In considering the role of the ureter in diseases of the female pelvis, I have briefly hinted at the anatomy and pathology of these conduits of urine from kidney to bladder. Now let us more specifically consider the absolute necessity for proper consideration of the ureter from a diagnostic and therapeutic standpoint in the treatment of female pelvic conditions.

In considering the cancer problem in gynecology, especially where the cervix is involved, we have the ureters in close proximity, so that they become incarcerated in the inflamed mass of tissues about the broad ligament and, if scar tissue develops, we get a certain amount of obstruction of the ureters which causes symptoms of stricture, dilatation, pyelitis, etc. If operative procedures are instituted after the disease is pretty well advanced, we have often the surgical hazard of injury to them unless they are carefully guarded during operation.

In operating for large fibroids, the ureters are frequently so misplaced that they are often either cut or traumatized at the time of operation—to such extent that a ureteritis will follow giving urological symptoms after recovery from operation.

The ureters, being made up of muscular tissue, mucous membrane, epithelial structure, etc., are capable of suffering inflammatory processes just as are other tissues in the body, and for this reason are entitled to proper consideration always in working out the diagnosis of a patient.

As these structures are endowed with their *pro rata* of nerves, blood vessels, lymphatics, etc., they are capable of giving pain when they have been traumatized or infected either from

within or without, and, being in close relation to the lymphatics of the cervix, etc., I feel they receive infection at times through this source, which may become lodged and establish foci of infection as do other structures within the body.

Ureteral pathology is quite frequently associated with other pelvic trouble and, owing to the frequency of these concomitant troubles, ureteral diagnosis and therapy cease to be a subject for only the specialist in urology and gynecology to diagnose and treat, but every general practitioner, surgeon, pediatrician or anyone else doing abdominal or pelvic work or diagnosis should be on the alert.

Urinary tract infections in women are by no means uncommon; in fact, they are so often encountered until they consume a good part of the time of the gynecologist in both diagnosis and treatment. These infections are associated with improper drainage of the urinary tract, caused by pressure from without or obstruction from within, stones, stricture, kinks, etc.

No doubt a great many of the infections encountered are autogenous in origin instead of coming from below by extension upward, or from contiguous tissues.

For bacteriological examination of urine to be of any value it should be of catheterized specimens, and, of course, if cystoscopies are being done, urine examination should be of specimens collected from each kidney. Possibly there are no more vague symptoms dealt with in the lower abdomen and pelvis and more difficult to diagnose than those caused by ureteral pathology in its various forms, and for us to begin the ordeal by removing appendices, tubes, ovaries, and operations for other conditions, with the hope of removing symptoms, without first making a diagnosis, is to court disaster for our patient and defeat for ourselves.

The trend or tendency to properly work up a diagnosis is on the increase, but surely we, as ethical, honest medical men, still have to stand with our heads bowed in shame when we see the unscrupulous, fee-splitting, supposed-to-be gynecologist or surgeon operating to amputate the patient's "bank roll", instead of for the purpose of restoring health by obtaining a correct diagnosis in order that proper treatment may be given, even though it is not as spectacular as operating.

My plea in this paper is for all of us, whether specialist or general practitioner, to approach the study of this problem of ureteral pathology as a definite entity, and, if necessary, diagnose by process of elimination, before we advise various and sundry operations, with the hope of relieving definite pain in the so-called neurotic patient. My five years' experience in dealing with insane hospital patients daily and my experience with gynecological work for a good many more years is that psychology, by improper surgical procedures or otherwise, usually will not relieve patients with pathology of the ureters unless proper treatment has been instituted.

So, in closing, let me suggest that we shall so practice that: "When the time comes for us to join the innumerable caravan, we may draw the drapery about our couch and lie down to pleasant dreams."

*Suite 804-6 Empire Building.*

### THE MEDICAL GALL-BLADDER.\*

By PHILIP JACOBSON, M. D., Petersburg, Va.

The term "Medical Gall-Bladder" was first introduced by the Mayos several years ago to indicate a gall-bladder which has been removed, not because of pathology found at the operating table but on account of a characteristic syndrome which has led to a diagnosis of gall-bladder disease and brought the patient to operation. The pathology found has certainly not been compatible with the severity of the symptoms; the few adhesions, slight thickening of the gall-bladder wall or moderate increase in size are much less than was expected and cause doubt as to the correctness of the diagnosis. But the pre-operative clinical picture is such that the gall-bladder could not be excluded. Hence, in the absence of other findings, it is removed along with the appendix and complete relief has followed in so many cases that the diagnosis must have been correct and the procedure justified. Such cases are extremely common, so much so that the term "Medical Gall-Bladder" has become generally recognized among surgeons.

The clinical picture is easily discovered and does not differ from that of other gall-bladder conditions except, of course, in the severity and degree that would be produced by acute inflammatory processes, new growths or com-

plete obstructions. Right upper quadrant pain, sometimes belt like, radiating to the back and right shoulder, belching and irregular uncomfortable digestive disturbances, although subject to many variations, usually comprise the syndrome. Often physical examination does not produce any clue to the diagnosis and cholecystograms have shown such gall-bladders well filled and emptying in the usual length of time.

This observation has been made many times, but, as yet, no explanation of the phenomenon has been agreed upon. E. Starr Judd, in an article on Gall-Bladder Surgery in the 1926 Mayo volume, points out that the condition is probably functional in character, but no mention of the nature of the function nor how it can be determined is made. Mentzer,\* in his recent study of 14,000 gall-bladders found at autopsy, has demonstrated that over 91 per cent are chronically inflamed, but this cannot always be demonstrable grossly and it is difficult for the surgeon at the table to believe that he must wait for the subsequent corroboration of the microscope to justify his surgical procedure.

A possible explanation of the fact that a gall-bladder having very little demonstrable pathology may produce severe clinical syndromes suggested itself to me after a rather unusual case of cholelithiasis in which I removed the gall-bladder. The patient, a young, thin woman of twenty-four, had a history extending over a period of two years. The first year and a half she had typical gall-bladder attacks, but for the six months previous to operation she noticed that the attacks had subsided but were replaced by a constant, heavy, dull ache in the right upper quadrant which had recently become much worse. Diagnosis of cholelithiasis was easily made because the gall-bladder was palpable and the X-ray showed stones.

At operation the gall-bladder was found packed with stones but, upon attempting to remove it, I found that the cystic duct had amputated itself and that it was only necessary to ligate the cystic artery in order to easily shell out the gall-bladder. The appendix was then removed and the patient had an uneventful convalescence.

The cystic duct itself, when not grossly affected or strictures are not found and with-

\*Read before the Southside Virginia Medical Association, December 11, 1928.

\*J. A. M. A., Feb. 25, 1927.



out apparent pathology in the gall-bladder, is not usually considered the site of the trouble. Frequently during an exploratory, when the gall-bladder is palpated, the remark is made that the bladder is soft, no stones are present and it empties easily and little attention is paid the cystic duct when the condition of the gall-bladder and common duct is thought to be normal.

The effect of slight pathological changes upon the gall-bladder and upon the cystic duct may, however, be quite different. In the gall-bladder little or no effect upon the contractility is noted unless the changes be demonstrable grossly. But in the cystic duct a very slight change may seriously interfere with its delicate, confined mechanism. Although the mechanism of the filling and emptying of the gall-bladder is not thoroughly understood, yet it cannot be denied that interference with emptying must produce a syndrome of some sort which is probably due to tension of the gall-bladder wall above that which is normal. When the gall-bladder contracts, if the exit is not entirely free, or in other words the cystic duct does not permit the easy passage of bile, then the internal pressure in the gall-bladder will increase and pain results, probably through the same mechanism that causes pain when any other abdominal viscus become distended.

The anatomy and physiology of the cystic duct make it very liable to difficulties if even very slight pathological changes occur in it. The cystic duct is a sort of offshoot from the common duct, arising about the middle of the latter. For about one-third of its length it runs upward parallel to the common duct and may be adherent to it. It then makes a short goose-neck curve, downwards for about 1 cm. until it merges into and becomes continuous with the ampulla of the gall-bladder. The anatomical variations are extremely numerous, its diameter, length and direction being extremely variable. The length may be  $\frac{1}{2}$  to 4 cm. and the diameter may be nearly as great as that of the gall-bladder itself. It is covered with peritoneum beneath which is a layer of fibro-muscular tissue and it is lined by mucous membrane similar to that of the gall-bladder except that from 3 to 12 circular elevations are present because of the muscular bands which act as the valve. The duct then is a short tube with a complex internal

mechanism, which could very easily be disturbed by alterations occurring in any or all of its layers, preventing the free operation of the valves and affecting especially dilatation.

For instance, a slight inflammatory change of the gall-bladder serosa, even though mild enough to produce only a few adhesions of the bladder to the liver, could, if extended down over the cystic duct, so thicken its peritoneum as to seriously interfere with its dilatation when the gall-bladder contractions were going on. Such changes in the peritoneal elasticity need only be very slight in order to interfere with dilatation of the duct. Slight inflammatory changes in the other layers may leave a degree of fibrosis in their wake which can have a similar effect upon the dilatation of the duct. That the duct of these gall-bladders may not be functioning properly can be demonstrated very often immediately after their removal. If one squeezes such a gall-bladder, the contents are seen coming through the cystic duct only after considerable pressure has been used—much more than it can generate by its inherent powers.

It is within the bounds of probability that slight changes in the walls of the cystic duct may interfere with its response to neurological stimuli. Filling of the gall-bladder which is dependent upon the increased pressure in the common duct resulting from the closing of its valve at the duodenum would hardly present any clinical manifestations if the cystic duct valve did not allow the entrance of bile. Small amounts may enter until enough to fill the bladder has accumulated. The operation is passive and the time element is not a factor. But when contractions of the gall-bladder occur and the response of the cystic duct is sluggish or inadequate the bile does not pass through it at a speed compatible with the rate the gall-bladder attempts to decrease its volume. Pain is the inevitable result.

The question that presents itself is—can a condition of the cystic duct which impairs its function be recognized at the operating table? Many times the gall-bladder feels and appears normal to the chagrin of both internist and surgeon. But in this condition the gall-bladder is not the point of attack. The cystic duct should be either palpated, or exposed. Palpation usually reveals the trouble as the duct can be easily felt as a cord which seems a little firmer than either ampulla of gall-

bladder just above it or the common duct below. The fact that the gall-bladder might empty easily is not sufficient evidence for proving that the cystic duct is functioning, nor should its tenseness be considered as a manifestation of duct obstruction. The latter may exist normally during starvation and the former be only temporary. When the gall-bladder is emptied at the table, pressure far in excess of that which exists when the bladder empties itself, is used.

Upon what basis shall the surgeon determine when the gall-bladder should be removed? Certainly satisfactory results have attended the removal of the gall-bladder based upon the syndrome that has brought the patient to operation and the occasional meagre pathology present. Truly it is difficult to correctly estimate the functionability of an apparently normal duct at the operating table. The basis for estimation may be in the relative density of the cystic duct walls to those of the gall-bladder and the common duct—especially the latter, as determined by palpation—or in noting a certain stiffness in these ducts which seems to indicate their inability to function properly. The peritoneum of an affected duct also may be lighter in color than that of the gall-bladder or common duct. Normally, of course, the cystic duct is denser than the gall-bladder or common duct, suggesting a cord, but it should lack stiffness and no disproportions should exist. Enlargement of the lymph gland near the edge of the lesser omentum usually indicates an inflammatory process.

Elaboration of the microscopic pathology is hardly necessary. The findings of Mentzer and others indicate the large percentage of gall-bladders having low grade inflammatory changes. That there are not more persons afflicted with gall-bladder trouble is probably due to the same reason that those with gall-stones have little or no trouble for so long a time or even not at all. Impairment of function need not always accompany pathological findings in the gall-bladder mechanism. If the lumen of the duct is large enough, nothing will happen in the same manner as freely movable and moderately large stone or stones in the gall-bladder may never cause symptoms.

I do not wish, in this paper, to enter the controversy of cholecystectomy *versus* chole-

cystostomy, nor to advocate the wholesale slaughter of gall-bladders. I am of the opinion, however, that once a patient has had gall-bladder symptoms and attacks, he will never become wholly free of them until the gall-bladder is removed. The attack means that impairment of function has occurred. The processes of inflammation invariably leave a trail, and should one be left in such a closely confined and small mechanism as the cystic duct, it hardly can ever resume its normal function. The gall-bladder then is cut off from its point and source of usefulness and, instead of being an adjunct to the biliary apparatus, it is merely adjacent to it and a constant menace not only to the biliary and digestive mechanism but, because of its increased susceptibility to becoming diseased, to the patient as well.

105 North Sycamore Street.

#### A BRIEF SUMMARY OF FINDINGS ON INTRAVENOUS MEDICATION BY DYES.\*

By M. C. NEWTON, M. D., Narrows, Va.

It is not my intention to more than briefly bring together some of the opinions of a few of our worthy colleagues regarding the usage of the two main dyes, mercurochrome and gentian violet, in intravenous medication in the treatment of localized and general infections.

Both dyes are known to penetrate the tissues with which they come in contact, especially mucous membrane and fresh wounds, to a greater degree than antiseptics which have been in common usage for years. Also, in non-toxic concentration they do no tissue damage. It has long been the desire of our profession and others to see a disinfecting agent which would safely combat blood stream and spinal fluid infections and yet not destroy tissue. No such agent has yet come into uncriticized usage.

Dr. Hugh H. Young and Dr. J. H. Hill found that mercurochrome 220 soluble and gentian violet can be introduced intravenously in doses of 5 mgm. per kg. of body weight in rabbits and 10 mgm. per kg. in dogs with impunity. Urine became bactericidal in 10 mgm. per kg. in rabbits and strongly bacteriostatic for *B. Coli*. It was also determined that the elimination of both dyes was through the kidneys. With dosage above the amounts

\*Read before the Southwestern Virginia Medical Society, at Wytheville, Va., September 27-28, 1928.



given in the preceding sentence, there is diarrhea and intestinal elimination. Direct action of mercurochrome is rapid. It is strongest during the first hour in the circulation, and in the urine for the first five hours.

In an article in *J. A. M. A.*, March 1, 1924, Dr. Young reported remarkable success against gram positive staphylococci.

In *Johns Hopkins Hospital Bulletin*, January, 1924, Dr. Young reported a cure of a retroperitoneal and perinephritic abscess by intravenous injection of mercurochrome. He noted nausea, sweating and a temperature rise to 106 during the first hour. At end of the fourth day, this temperature was normal and the patient was free from all symptoms.

In the *Journal of Urology*, No. 6, June, 1925, he reports a series of cases:

(a). Four perinephritic cases with intravenous mercurochrome in doses of 2.3 to 5 mgm. per kg., in which all were improved or completely recovered.

(b). Pyelonephritis — twenty-six cases — with very gratifying results; all cases were, with one exception, improved or cured.

(c). Cystitis and prostatic vesiculitis—three cases cured, one showed very little effect of treatment.

(d). Acute gonorrheal urethritis—twenty-six cases. Resumé: "It is apparently proven that gonorrheal urethritis may sometimes be rapidly sterilized and all symptoms of disease may disappear after several intravenous injections of mercurochrome 220, but that doses of 4 and 5 mgm. per kg. body weight should be employed to secure results. With smaller doses reactions may be evident, but the patient may not be cured. In many cases the treatment failed.

Gonorrheal arthritis—twelve cases, acute and chronic. Each case improved or cured.

Chronic chancroidal ulceration—four cases—each early benefited and cured.

The same author also reported cases ranging from cystitis to endocarditis, broncho-septic pneumonia, with a reduction of mortality.

On March 21, 1925, in *J. A. M. A.*, Drs. I. C. Brill and H. B. Myers, of Portland, Ore., reported three cases of bacteremia and two cases of local gonorrheal infection treated intravenously with mercurochrome and gentian violet, in which the treatment interfered in no way with the progress of the disease.

Hill and Birdgood injected rabbits intravenously with mercurochrome and noted the effect on the kidneys. As high as 7.5 mgm. per kg. of body weight showed no destruction of tubular epithelium. However, 10 mgm. per kg. showed definite renal damage.

In June, 1924, W. A. Whitman reported remarkable results from intravenous injections of mercurochrome in ten cases of chronic and subacute gonorrhea.

In August, 1924, Young and Birkhaug reported cures in two cases of scarlet fever, complicated with erysipelas and streptococcic septicemia, treated with intravenous mercurochrome.

The VIRGINIA MEDICAL MONTHLY, in June, 1926, carried a reprint by J. S. Horsley, Jr., M. D., Richmond, Va., which summarized his cases as follows:

1. In doses varying from 3 to 7 mgm. per kg. body weight, properly prepared  $\frac{1}{2}$  to 1 per cent aqueous solutions of gentian violet were given intravenously fifty-one times to thirty-eight patients with decided improvements to twenty-one and only three reactions. He showed that gram positive staphylococci were killed by the dye.

2. In doses varying from 3 to 5 mgm. per kg. body weight, freshly prepared 1 per cent aqueous mercurochrome was used with subsequent improvement in only four cases of sepsis out of twelve treated. Sepsis caused by gram negative organisms of the colon bacillus group and by the gonococcus showed some improvement in this series of eighteen injections.

3. Doses of less than 3 mgm. per kg. of body weight with either of the two dyes were of little, if any, value. Often several injections at intervals of one or several days were necessary to obtain the full therapeutic effect.

4. The mode of action of these intravenous dyes is complex and as yet unexplained. Similar results followed the increasing intramuscular injections of milk at repeated intervals, and may occur after powerful reactions caused by other intravenous preparations.

Deviating from dyes, I may add that the manufacturers of hexylresorcinol S. T. 37 inform me that it becomes inert upon intravenous injection.

While mercurochrome 220 soluble and gentian violet in aqueous solutions are not proven curative agents in intravenous therapy against infections, yet there is ample reason to believe

they are not without merit, and many well known authorities are convinced of their worth. There are no contraindications of note to their usage, and probably future work, will substantiate the claims of the earlier investigators.

My personal experience in the usage of these dyes is limited, but I feel that they are well worth using. I do not feel like one of my teachers, well known to most of you, that the chief merit of mercurochrome lies in its beautiful red color.

## Medical News of the Past

FORTY-FOUR YEARS AGO

During the first year after its organization—1885—the Virginia State Board of Medical Examiners awarded certificates to thirty-six physicians to practice medicine in this State. Twenty of these were given as follows, after the April examinations:

Dr. Robt. Randolph Ball, Casanova, Va.  
 Dr. S. W. D. Brewer, Harrisonburg, Va.  
 Dr. Frank Camm, Lynchburg, Va.  
 Dr. Geo. W. Cocke, Berger Station, Va.  
 Dr. J. G. Davis, West Point, Va.  
 Dr. James G. Field, Jr., Gordonsville, Va.  
 Dr. Andrew C. Fisher, Richmond, Va.  
 Dr. R. H. Garthright, Elko, Va.  
 Dr. H. H. Irwin, Woodstock, Va.  
 Dr. W. J. Kendall, Paris, Va.  
 Dr. J. W. Kite, Liberty Mills, Va.  
 Dr. D. A. Kuyk, Atlee, Va.  
 Dr. A. L. Leftwich, Richmond, Va.  
 Dr. W. A. McKinney, Lynchburg, Va.  
 Dr. F. M. Nichols, Snickersville, Va.  
 Dr. Robt. G. O'Hara, Charlemont, Va.  
 Dr. W. A. Plecker, Staunton, Va.  
 Dr. E. A. Terrell, Beaver Dam, Va.  
 Dr. K. H. Trimble, Monterey, Va.  
 Dr. W. L. Williams, Marysville, Va.

At later examinations held during the year, the following were licensed:

Dr. John W. Bolen, Fancy Gap, Va.  
 Dr. O. S. Burns, Lebanon, Va.  
 Dr. W. W. Buck, Rural Retreat, Va.  
 Dr. J. T. B. Hyslop, Pungoteague, Va.  
 Dr. A. T. Keen, Sago, Va.  
 Dr. J. C. Meredith, Nokesville, Va.  
 Dr. E. M. Magruder, Charlottesville, Va.  
 Dr. H. W. McElwee, Low Moor, Va.  
 Dr. W. H. F. Miller, Richmond, Va.

Dr. Thomas M. Norton, Alexandria, Va.  
 Dr. W. S. Robertson, Jr., Pleasant Gap, Va.  
 Dr. P. S. Roy, Fredericksburg, Va.  
 Dr. S. S. Simpson, Aldie, Va.  
 Dr. George A. Taber, Richmond, Va.  
 Dr. E. F. Truitt, (?), later of Norfolk, Va.  
 Dr. Edwin P. Turner, Fergusson's Wharf, Va.

Of the above named men, seven are now members of the Medical Society of Virginia, residing at the places listed with their names: Dr. John G. Davis, Roanoke; Dr. R. H. Garthright, Vinton; Dr. W. A. Plecker, Richmond; Dr. E. A. Terrell, Fredericks Hall; Dr. W. L. Williams, Brookneal; Dr. J. W. Bolen, Galax; and Dr. W. H. F. Miller, Clifton Forge.

## Proceedings of Societies

### Child Welfare Committee, Medical Society of Virginia.

#### MINUTES OF THE FIRST MEETING OF THE CHILD-WELFARE COMMITTEE.

The meeting of the Child Welfare Committee of the Medical Society of Virginia was called to order by the Chairman, Dr. W. P. Jackson, of Roanoke, at 2:00 o'clock, Sunday afternoon, April 21, 1929, in the office of the State Department of Health. Those present were Dr. A. T. Finch, of Chase City; Dr. Percy Harris, of Scottsville; Dr. R. T. Hawks, of Carson; Dr. J. Bolling Jones, of Petersburg, President of the Medical Society of Virginia, and Dr. M. E. Brydon, of the State Department of Health. Dr. J. H. Hiden, of Pungoteague, was unable to attend the meeting.

The Child Welfare Committee of the Medical Society of Virginia was appointed in October, 1928, by the President of the Society. In November, 1928, the Division Superintendents' Association requested this Committee to study the best means of preventing or correcting the bodily defects of school children, with the aim of sending physically fit children to them to teach, reaching at least the present Five Point minimum standard adopted by the State Department of Health and the State Department of Education. The Committee held its first meeting on April 21, 1929, to begin studying this work.

Dr. Brydon briefly outlined to the Committee the methods and results in child health carried out and accomplished by the State Department of Health. She also presented the old and new plans adopted by the Health Department for getting pre-school children physically ready for school.

The first point of the new plan, what fee should be charged, was discussed by the members of the Committee and the following resolution was adopted:

I. "Resolved, that the members of the Child Welfare Committee of the Medical Society of Virginia recommend that in the pre-school child health examinations, the fee be the regular office fee. We make this recommendation because the State Department of Health and the State Department of Education are both directing their efforts to send these



children to the family physicians for these pre-school child health examinations."

The next point of the new plan, what should be a standard for an examination, was taken up. After much discussion a resolution was adopted as follows:

II. "We, the Child Welfare Committee of the Medical Society of Virginia, recommend the following standard for examination of the pre-school children that are sent to the physician's office:

1. Good nutrition.
  - a. Not more than 10 per cent below or 20 per cent above average weight for height and age.
  - b. Firm musculature and subcutaneous tissue.
  - c. Hemoglobin not below 75 per cent (Talquist scale).
2. Eyes: 20/20 vision with no symptoms of eye strain—or corrected to 20/20 vision with glasses if necessary, and with no organic lesion which impairs function.
3. Accurate hearing, with no malformation or chronic disease. (Ordinary conversational voice 20 feet).
4. Free nasal passages, absence of mouth breathing. (No adenoids).
5. Healthy throat—if tonsils are infected or are the causes of other defects, they should be removed.
6. Teeth reasonably clean, no exposed roots or unfilled cavities. (Preferably checked by dentist).
7. No glandular disturbance, such as tuberculous adenitis, hypertrophied thyroid, etc.
8. Fully compensating heart (rule out by exercise if suspicious), with no organic lesion.
9. No disease of the lungs; tuberculosis, bronchitis, asthma, etc.
10. No abdominal defect, as hernia, palpable spleen or enlarged liver.
11. No intestinal infestation, as parasites. (If suspicious send specimen of stool to the State Laboratory.)
12. No major orthopedic defects, erect posture. (All minor orthopedic defects corrected, as flat foot, postural curvatures, etc.)
13. Skin and scalp free from parasitic and other infections or serious conditions. (If suspicious have specimen of blood sent to State Laboratory for Wassermann test.)
14. Absence of organic or functional nervous disease.
15. Protection against smallpox, diphtheria, typhoid and para-typhoid."

The question of what should be a *minimum* standard of physical fitness was brought to the attention of the Committee. The present Five Point minimum standard for physical fitness used by the State Department of Health and the State Department of Education was brought up for discussion as a minimum standard. It was found to cover the desired minimum standard which is as follows: Vision, child reads line marked 20 on the Snellen eye testing chart at a distance of 20 feet (each eye tested separately), or has glasses which supply an equivalent degree of vision; Hearing, child hears conversational voice at a distance of 20 feet (each ear tested separately); Teeth, reasonably clean, no exposed roots or unfilled cavities (preferably checked by dentist); throat, child has no symptoms of trouble with tonsils and adenoids; not a mouth-breather (preferably checked by physician); Weight, child is not 10 per cent or more underweight, or not 20 per

cent or more overweight. The following resolution was adopted:

III. "Resolved, that the Child Welfare Committee of the Medical Society of Virginia adopt for use by the physicians of the State of Virginia the Five Point standard as recommended by the State Department of Health and State Department of Education as a minimum standard of physical fitness for the pre-school child."

The Committee decided that a resolution should be made and a copy sent to the Division Superintendents' Association in response to their request that this Committee study the pre-school health work. The following resolution was adopted:

IV. "Resolved, that we appreciate the work done by the Division Superintendents' Association of Virginia and their marked interest in the health of the children of the State of Virginia, as evidenced by their resolution. We heartily endorse the same and desire to state that the physicians of the State of Virginia are not only interested in her children, but are also willing and ready to do what they can for the advancement and furtherance of the above plans for securing healthy children."

The next point in regard to this new plan for getting the pre-school children physically ready to enter school was how to handle this question, in view of the fact that in certain localities there are few physicians, with a large number of very poor school children. After many suggestions and much consideration, the members of the Committee passed the following resolution:

V. "Resolved, that we recommend to the Medical Society of Virginia, to the Association of Division Superintendents, to the Association of Teachers of the State of Virginia, and to the Parent-Teachers Associations, that in certain localities where the physicians are limited and there are large numbers of poor school children unable to pay any fee for examination in pre-school child health work, these children, with their parents, be gathered together in groups in the physician's office or wherever he shall determine, and clinics be arranged in cooperation with the local physicians in nearby counties or districts to render the necessary assistance, and in case this cannot be done adequately, that the State Department of Health in Richmond be called upon for assistance in this work."

There was a discussion about discontinuing the old plan of the State Department of Health for getting pre-school children physically ready for school. The Committee believed that the old plan should be discarded as rapidly as possible and that the new plan as outlined by the State Department of Health be substituted as rapidly as possible, so the Committee adopted the following resolution:

VI. "Resolved, That the Child Welfare Committee recommend that the old plan of the State Health Department be discarded as rapidly as possible and that the new plan adopted by the State Department of Health be substituted, as modified and approved by the Child Welfare Committee, a copy of which is herewith attached."

A motion was made and seconded that the following request be sent to the Committee on Post-Graduate instruction of the Medical Society of Virginia.

VII. "We, the members of the Child Welfare Committee, would like for you to take into consideration the advisability of an endeavor to arrange, in conjunction with the various medical organizations of the State, or such other agencies as may seem best, demonstration clinics touching the better plan of ex-

amination of children. The reasons for this request are:

1. The very high percentage of both pre-school and school children who are physically unfit to take the proper advantage of the educational opportunities offered them.

2. The strenuous effort that is now being made by the State Department of Health to get these little patients into the rightful hands, the family physicians.

3. The importance of periodic health examinations of children through their school life has only recently been recognized generally, for which reason many of us have not had the advantage of such training as would seem most helpful in making these examinations.

In the event it can be arranged, it would seem to our Committee that it is desirable that these clinics be not entirely confined to the centers of population but made to embrace all portions of the State, especially through the county medical societies."

Dr. Brydon then asked the members of the Committee what they would like the State Department of Health to do in regard to this pre-school work. The Committee discussed the matter and adopted the following resolution as to the work that the State Department of Health should now do concerning this work:

VIII. "Resolved by this Committee, That we request the State Department of Health to continue its work in child welfare in accordance with the new plan as adopted by this Committee on April 21, 1929, and that they make such reports to us as will enable us to further perfect the plan."

A motion was made and carried that Dr. Brydon make a report of the transactions of this meeting and send a copy to each member of the Committee.

The meeting adjourned at 6:00 P. M.

## Woman's Auxiliary, to the Medical Society of Va.

### Annual National Meeting.

The Annual Meeting of the Woman's Auxiliary to the American Medical Association will be held in Portland, Oregon, July 8th-12th. The Executive Board will meet Monday the 8th, a general meeting relating to Public Health of two and a half hours' duration will take place on Tuesday the 9th. The general meeting for the hearing of reports, election of officers and other business, as well as addresses from members of the American Medical Association, will be held on Wednesday the 10th, and the final Board meeting on Thursday. It is hoped that many Virginia women will attend this meeting, and that all of them, whether members of the Auxiliary or not, will register.

I wish to remind the county members that at the meeting last October the Medical So-

ciety of Virginia appointed an Advisory Committee of three of their members to help the Auxiliary chairmen. When in doubt as to the proper course to take in any matter these gentlemen are at your service. The Committee consists of Dr. Bolling Jones, Petersburg; Dr. J. Allison Hodges, Richmond, and Dr. Southgate Leigh, Norfolk.

A letter has gone to all county Presidents asking them to send in their reports and a list of their paid up members so we may make a good showing in Portland. We need some more paid up members to show growth since last year

MRS. F. W. UPSHUR,  
*State President.*

Below are some letters from prominent members of the American Medical Association that appeared in the *Missouri Bulletin*. These should be an incentive to all our women to organize, so please read them.

### MESSAGE FROM THE PRESIDENT-ELECT, AMERICAN MEDICAL ASSOCIATION

Chicago, August 21, 1928.

It is with great pleasure that I extend the appreciation of the American Medical Association for the excellent work of the Women's Auxiliary to the Missouri State Medical Association. The efficiency of your organization in aiding in the dissemination of *Hygeia* among the laity of your state deserves special credit as does also the commendable manner in which you have cooperated with the program committee of the Women's Clubs.

MALCOLM L. HARRIS.

### MESSAGE FROM THE EDITOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Chicago, October 8, 1928.

I am a believer in the Women's Auxiliary to the American Medical Association, because I know by demonstration what it can accomplish. I have seen its fine work on behalf of *Hygeia*. I have seen its influence in the promotion of attendance at medical meetings. I have seen its share in entertainment and in arranging programs of women's organizations. It has begun to fill a definite place in medical life.

More power to it!

MORRIS FISHBEIN.



MESSAGE FROM THE SURGEON GENERAL U. S.  
BUREAU OF THE PUBLIC HEALTH SERVICE  
Washington, September 10, 1928.

May I extend my congratulations upon the publication of your Fifth Anniversary Year Book and best wishes for continued success!

The cooperation and interest of the Women's Auxiliary in Missouri in the work of the State Board of Health and other public health agencies are of great assistance not only in that state but their sphere of influence extends outside as well. It is indeed a pleasure to have this opportunity to express to the Auxiliary, and to the State Medical Association which it serves, my cordial appreciation of the understanding and support which we have always received from their representatives.

H. S. CUMMING.

## The Truth About Medicine

In addition to the articles enumerated in our letter of February 23rd, the following have been accepted:

Haley M-O Co.

Magnesia-Mineral O.I (25)—Haley.

H. K. Mulford Co.

Perfringens Antitoxin—Mulford.

National Drug Co.

Diphtheria Toxin-Antitoxin Mixture.

Parke, Davis & Co.

Tetanus-Perfringens Antitoxin, Refined and Concentrated.

G. D. Searle & Co.

Solution Bismuth Sodium Tartrate—Searle, 15 per cent Sulpharsphenamine—Searle.

Sulpharsphenamine—Searle, 0.4 Gm. Ampules.

Sulpharsphenamine—Searle, 0.5 Gm. Ampules.

Sulpharsphenamine—Searle, 0.6 Gm. Ampules.

### NEW AND NONOFFICIAL REMEDIES

Lipiodine-Ciba (New and Nonofficial Remedies, 1928, p. 215).—In the form of Lipiodine-Ciba, Diagnostic, it is used as a contrast medium in the localization of bronchial and pulmonary lesions, as a diagnostic aid in gynecology and myelography, for detecting urethral strictures, and in cavities where intensification of the roentgen ray shadows is desired. The dosage for diagnostic work is from 5 to 20 c.c. of Lipiodine-Ciba, Diagnostic, as determined by the extent of the field to be investigated. Ciba Co., Inc., New York.

Lipiodine-Ciba Diagnostic.—A 60 per cent solution of Lipiodine-Ciba (New and Nonofficial Remedies, 1928, p. 215) in sesame oil. Ciba Co., Inc., New York.

Ampules Lipiodine-Ciba Diagnostic, 5 c.c.—Each ampoule contains 5 c.c. of a 60 per cent solution of Lipiodine-Ciba (New and Nonofficial Remedies, 1928, p. 215) in sesame oil. Ciba Co., Inc., New York.

Acidophilus Bacillus Liquid—Mulford.—A whey culture of *B. acidophilus* (Moro) in a whey medium, which contains 50 million viable organisms per c.c. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus preparations see Lactic Acid Producing Organisms and Preparations, New and Nonofficial Remedies, 1928, p. 228. H. K.

Mulford Co., Philadelphia. (Jour. A. M. A., March 2, 1929, p. 723).

Dial-Ciba.—Diallylbarbituric acid.—Dial-Ciba differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced by allyl groups. The actions and uses of Dial-Ciba are essentially similar to those of barbital, but Dial-Ciba is more active than barbital and it is used in correspondingly smaller doses. Fractional doses are used as a sedative and larger doses as a hypnotic. The hypnotic action is induced within one-half to one hour. As a sedative the dosage is 0.02 to 0.04 Gm. two or three times daily; as a hypnotic 0.1 to 0.3 Gm. one-half to one hour before sleep is desired. The product is supplied in powder, in Tablets Dial-Ciba, 0.1 Gm. and as Elixir Dial-Ciba containing 0.05 Gm. per 4 c.c. Ciba Co., Inc., New York. (Jour. A. M. A., March 23, 1929, p. 983).

### PROPAGANDA FOR REFORM

COUNCIL PASSED.—Notification is being sent to the medical profession that the well known Haley's M-O, Magnesia Oil has been accepted for N. N. R. of the American Medical Association. Henceforth the product will be known as Magnesia-Mineral Oil (25) Haley. It was certainly a happy thought to combine Liquid Petrolatum and Milk of Magnesia in the form of a permanent uniform, unflavored emulsion. The taste is not at all unpleasant and the absence of any distinct flavor prevents the habitual user from growing tired of it.

The value of mineral oil as a lubricant and emollient for the treatment of certain forms of obstipation has been well established. In many cases, however there is added to the need for lubrication the indication for the use of a mild laxative and ant-acid for which purpose years of clinical use have demonstrated Milk of Magnesia to be ideal.

Practically, there exists in many cases of intestinal stasis and constipation a hyperacid condition which calls for the use of an antacid.

Magnesia-Mineral Oil (25) Haley has therefore a therapeutic field considerably broader and more diversified than is the case with either one of its ingredients considered singly.

The makers of this product, were prompt to realize this but were also well aware that skepticism or doubt is apt to be aroused when the number of indications for the product is large.

As evidence of good faith and entirely in the interests of the medical profession, numerous questionnaires have been sent out from time to time, giving the physician an opportunity to indicate exactly under what conditions his use of Magnesia-Mineral Oil (25) Haley proved most satisfactory. Response to these questionnaires has been prompt and numerous.

Tabulations have been carefully made of the replies received from physicians and only those indications mentioned in the literature which proved to have been common to a large number of doctors. In this way it is believed, undue claims have been avoided and the doctors have been given reliable information based upon actual clinical use.

The same method has been employed in the case of the dental profession, because dentists have been prompt to recognize the value of Magnesia-Mineral Oil (25) Haley as an antacid mouth wash. The advertising of this product has been kept within strictly ethical limits.

Radio Broadcasting of Medical Advertising.—The promoters who travel the borderland between honesty and quackery, raking in the shekels of the unwary, have found in radio broadcasting a glorious

accessory for their manipulations. The mutterings of mystics from India and of fortune tellers from France, the claim for hair growers from Austria, for magic horse collars, for radium drinking waters, for antiseptics, cosmetics, influenza and cancer cures, the sexual appeals of rejuvenationists, the mouthings of evangelistic and faith healers, and preposterous dietary schemes come pouring from the loud speakers. At a conference held in Chicago by representatives of the broadcasting stations, the Better Business Bureau and the American Medical Association, the following resolution was offered: Station directors should keep alive to the fact that all broadcasting is listened to by all members of the family circle and that nothing should be broadcast that is in poor taste, embarrassing or offensive when heard by all members of the family. The combined action of the radio broadcasting industry and the Better Business Bureaus of the nation should lead promptly to control, indeed, to actual sanitation, of medical radio advertising. (Jour. A. M. A., February 9, 1929, p. 475).

An Anesthetic Accident.—Recently at Evansville, Ind., a tank of nitrous oxide exploded, killing an anesthetist, maiming his attendant, and wrecking several rooms. There was no tank containing ethylene in the room. The nitrous oxide tank was not attached to the machine. It has been assumed that the nitrous oxide tank contained some ethylene. This presumably gained access to the nitrous oxide cylinder when, at some previous time, the tank had been suspended from the yoke of an old time anesthetic machine, so constructed that a mixture of the two gases would occur if the valves were left open. The accident occurred probably as a result of a mixture in the tank of these two gases, notwithstanding the ample warning given years ago regarding the use of ethylene. (Jour. A. M. A., February 9, 1929, p. 476).

Lesser Slim Figure Bath.—During the past few months there has been put on the market a preparation sold under the name of "Lesser Slim Figure Bath," which is described as "The Sensation of Europe" that, by its "mysterious action," will reduce the weight of the fat "regardless of your diet." It comes from Berlin—if one is to believe the advertising—and is the invention of Herr Felix Lesser, who, it is claimed, submitted "his remarkable discovery" to "the eminent Dr. G. Braun, of Berlin." The eminent doctor's report is part of the Lesser Slim Figure Bath advertising. An American company has been formed—the Lesser Co., incorporated under the laws of Illinois, with John J. Mitchell, a prominent Chicago banker, as treasurer. The Chicago *Tribune* has advertised the preparation, although its health editor informed a correspondent that he knew of no substance used in baths which will reduce weight. The Lesser Slim Figure Bath comes in the form of a package of white, highly scented effervescing powder, in which there is a large compressed tablet that also effervesces. The instructions are to fill the bath tub with hot water, empty the contents of the package into the tub and stir well, get into the tub and place the tablet "under your back." From its analysis, the A. M. A. Chemical Laboratory concludes that a product having essentially the same properties as the bath powder, may be prepared by using: corn starch, 7 parts; borax, 1 part; baking soda, 1 part; tartaric acid, 1 part; strongly odoriferous perfume. The Laboratory found from its analysis that a tablet having essentially the same composition as that of the Lesser tablet may be prepared by using: baking soda, 1 part; table salt, 6 parts; tartaric acid, 3 parts; talc, as

binder. Every physician knows that this absurd mixture cannot have the slightest effect in the reduction of weight. (Jour. A. M. A., February 9, 1929, p. 492).

Heparmone for Eclamptic Conditions.—The Council on Pharmacy and Chemistry publishes a preliminary report on the use of Heparmone in eclamptic conditions. Heparmone is the name applied by Eli Lilly & Co., to an acid alcohol extract of liver. The firm presented details of manufacture of the product and method for its standardization. The preparation has been used experimentally in studies of hypertension, but the firm restricts its recommendations at this time to the use of Heparmone in eclamptic conditions and did not ask for consideration of the experimental work in hypertension. Drs. Miller and Martinez, from the Department of Obstetrics, University of Pittsburgh School of Medicine, read a paper on their use of Heparmone in pre-eclamptic conditions and eclampsia before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-ninth Annual Session of the American Medical Association at Minneapolis, June 14, 1928. The Council examined the evidence presented in this paper and concluded that Heparmone is not acceptable for New and Nonofficial Remedies, because there is insufficient evidence at hand concerning its therapeutic value. Since the product is not being marketed, the Council postponed action to await further evidence and published its preliminary report. The Council holds that the product should not be recommended to the general profession until its value or promise has been demonstrated by further clinical trial in obstetric clinics where there are men trained in the experimental method of medicine. (Jour. A. M. A., February 23, 1929, p. 649).

Ethylhydrocupreine Base in Pneumonia.—Ethylhydrocupreine, introduced as optochin, appears to be a specific agent against the pneumococcus. It is, however, so much less efficient against other microorganisms that, in an influenzal pneumonia due to any other organism than the pneumococcus, ethylhydrocupreine would not be of any use. Even in pneumococcus infection, one could hardly call ethylhydrocupreine an ideal remedy. To have any effect it must be given in the largest dose tolerated and at the earliest possible moment. Its worst feature is its tendency to produce optic neuritis. To prevent this, the technic has been elaborated of giving ethylhydrocupreine base with milk. (Jour. A. M. A., February 23, 1929, p. 673).

## Book Announcements

**Youthful Old Age: How to Keep Young.** By WALTER M. GALLICHAN. With an Introduction by THURMAN B. RICE, M. D., Associate Professor of Bacteriology and Public Health, Indiana University School of Medicine; Author of "Conquest of Disease" and "Racial Hygiene." New York. The Macmillan Company. 1929. 236 pages. Cloth. Price \$2.50.

**Report on Fourth International Congress of Military Medicine and Pharmacy.** Warsaw, Poland, May-June, 1927. By COMMANDER WILLIAM SEAMAN BAINBRIDGE, M. C. F., U. S. Naval Reserve, Member of Permanent Committee, Delegate from the United States. The Collegiate Press. George Banta Publishing Company. Menasha, Wisconsin. 248 pages. Cloth.



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## Editorial

### Blood Examinations in Diagnosis.

Hematology today presents an ever increasing range of interest. Problems of clinical medicine and practical surgery are closely related to blood values; to blood morphology; to blood diagnosis. The histology and pathology of the blood are wrapped up in the many practical questions of diagnosis and treatment. With the active work of recent years in pernicious anemia alone, one may find illustrative material in emphasizing this relationship.

Giffin\* recently presented comments upon inferences that may be drawn from the blood count and from the morphology of the blood cells, which bears out the importance of a close scrutiny of the blood by clinicians. Several case reports were given by Giffin to serve as material for the comments. Summarizing, he notes, that high color index is valuable in the diagnosis of pernicious anemia and hemolytic icterus; that persistent leukopenia directs attention to the probable diagnosis of aplastic anemia and agranulocytosis; that the distribution of cells in the differential count signifies a distinction between hemorrhagic purpura and aplastic anemia; that a high percentage of reticulated cells are indicative of an active blood marrow; that the leucocyte count depends upon three conditions (a) production of cells, (b) destruction of cells, and (c) mobilization of cells in the circulation. Finally, it was stated, that leukopenia may be temporary or permanent; and that severity of the infection, causing redistribution, suppression or permanent injury of bone marrow, enters into the problem of the correct interpretation of blood counts.

### Agranulocytosis.\*

Death in patients with peculiar and noxious mouth symptoms and a low white cell count and preceded by a high range of temperature has emphasized the need for a more popular discussion of a disease entity called agranulocytic angina.

It was Schultz in 1922 who described a group of cases of a necrotic angina giving a marked granulocytic leukopenia. He gave the condition the name of agranulocytosis.

Hueper has made a discussion of the symptoms, pathology and differential diagnosis in connection with a group of five cases observed by him between November, 1927, and April, 1928.

The author makes the interesting observation that the existence of previous diseases, even of the throat, apparently has no positive causative significance. The onset of the processes of agranulocytosis may accompany a condition showing headaches, fatigue, weakness, or it may appear in a patient previously feeling well. Fever of high type and continuous, associated with rapidity of pulse, malaise, dysphagia and dyspnea, characterize the onset in these patients; and withal a peculiar sore mouth or throat. This feature may not at first emphasize itself, and may appear important only about the third or fourth day. Then may follow herpes labialis, jaundice (50 per cent), diarrhea, increasing weakness and toxicity of the patient. Growing rapidly worse, death may result in seven days; in two days coma followed by death may occur. Remissions may occur but the disease is generally fatal; the record of recoveries up to the time of Hueper's paper was six cases.

Oral examination of these patients reveals enlarged reddened tonsils with white or yellowish plugs on them. These areas turn dirty gray and yellowish, and the removal of these necrotic membranes leaves an ulcerated surface. Gangrenous and blackish material may slough from the diseased tonsils. On the pillars, uvula, palate, base of tongue, pharynx and gums, similar necrosing processes may be found. Besides stomatitis, foul tongue and hemorrhagic areas are present in the mouth. Submaxillary and cervical lymph nodes are both enlarged and tender. Ulcerations similar in nature may be observed in the anal region:

\*See report of Staff Meeting Mayo Clinic, February 13, 1929.

\*Hueper, A. I. M., Vol. 42, number 6, page 893.

the vulva, vagina and uterine cervix in some cases.

Heart, lungs, liver, gall-bladder, spleen and kidneys may become involved in the symptomatology but in no definite or characteristic manner. Bacterial examination of the "throat does not render results of any special significance"; there are, however, usually found staphylococci, streptococci and pneumococci. Fusospirillosis was associated with the disease in only 10 per cent of the cases.

Blood examination gives most definite changes. Leukocytes are decreased in number, from 1,500 to 100 in a cubic millimeter. Granulocytic cells decrease and finally disappear. While immature forms are not found, degenerative forms may be. Lymphocytic cells decrease, while "monocytes are temporarily somewhat increased". Erythrocytes and hemoglobin are unaltered except in minor particulars. Coagulation time is normal. Widal and Wassermann tests are negative. Blood cultures are usually negative being positive in only 10 per cent. In this 10 per cent group, cultures show hemolytic and non-hemolytic streptococci and staphylococci, streptococcus viridans, bacillus pyocyaneus, bacillus acidilactici and bacillus coli.

Agranulocytosis is more frequent in women than men; it appears after middle life most frequently. Germany and Austria seemed to report cases first and most frequently, but the United States and Canada have been reporting cases more recently.

Differential diagnosis may have to be made with several diseases. Influenza and typhoid differ in not disclosing essential agranulocytosis. Septicemia differs in showing hemorrhagic diatheses, abscesses, primary foci, immature forms of granulocytes, thrombopenia, secondary anemia, frequently positive blood cultures, etc. Acute Leukopenic Leukemias also show generalized hemorrhagic diatheses, secondary anemia, thrombopenia, etc., and alterations in liver, spleen, lymph nodes, and kidney.

Diseases with mouth symptoms, which may be confused with agranulocytosis, are diphtheria, Vincent's angina and monocytic angina (Schultz). The characteristic downward progress of agranulocytosis, marked by hema-

tologic changes, as above noted, makes for differentiation.

#### THERAPY

Hueper quickly summarizes his experiences in therapy: that diphtheria antitoxin, arsphenamine, mercurochrome—220 'soluble, an organic iodine compound, alcohol, various silver compounds, acridine dyes and many local caustics and disinfectants have been used without favorable effect.

Repeated transfusions of large amounts of blood gave temporary improvement. Recovery, after administration of polyvalent anti-streptococcus serum and Roentgen ray irradiation of the long bones with stimulating doses, was noted.

(Read: Also Rose and Houser, *Archives of Internal Medicine*, April, 1929.—Editor).

#### Figures on Surgical Operations of Duodenum and Stomach.

Balfour's presentation of experiences of the Mayo Clinic\* in surgical procedures upon the stomach and duodenum during the year 1928 offers the reader an interesting summary of their success in this field of surgery. Nowhere in this country is there opportunity presented to observe a larger number of operations for lesions of the stomach and duodenum in one year's time than in the Mayo Clinic. In 1928, there were 1,891 operations on the stomach and duodenum: over six operations a day for 300 days. The mortality rate for the series, including malignant and non-malignant lesions, was 2.74 per cent. This is apparently a remarkably low mortality rate and can be explained upon the basis of skill in operation, "careful selection of patients for operation, and to the efficient pre-operative and post-operative care". In the case of duodenal ulcer, it is interesting to note that Balfour points to the conservative attitude of the Clinic toward duodenal ulcer. For during 1928 there were diagnosed at the Clinic by Roentgen ray 2,261 duodenal ulcers but only 803 were operated upon. He adds, "there is no disposition as yet to depart from the conservative attitude both in selection of patients and the type of operation". In an operative experience for duodenal ulcer in 803 cases the mortality rate was only 1.12 per cent.

For gastric ulcer, there were 133 patients operated upon in the Clinic in 1928 and there

\*Staff Proceedings Mayo Clinic, February 20, 1929.



was a mortality rate of 4.5 per cent. For carcinoma of the stomach during the last year, 280 patients were operated upon and there was a mortality rate in this series of cases of 8.2 per cent.

#### **Brief Treatise on the Diagnosis and Treatment of Pulmonary Tuberculosis.**

The State Department of Health has issued a booklet by the above title. The author, Dr. W. E. Brown, Superintendent of the Blue Ridge Sanatorium, Charlottesville, is to be congratulated upon this practical and useful treatise. The subject is well considered and the text matter is clearly expressed. The book of thirty-seven pages presents the disease in simple but scientific manner and brings within its scope a treasure of useful information. Every practitioner of medicine in Virginia may well devote a few hours to its perusal for in this way a disease of greatest human interest may be easily reviewed. The author's familiarity with the problems of diagnosis of tuberculosis and its treatment are evidenced in its pages and many common sense observations and scientific truths are expressed therein.

It is hoped that the State Department of Health may send this monograph to every member of the Medical Society of Virginia, as well as to all licensed practitioners in the State.

We take pleasure in bespeaking for it a thoughtful reading because we feel that such time will be profitably spent.

## **News Notes**

### **Our Charlottesville Meeting.**

Our members will be interested in knowing that the local committee in charge of our Charlottesville meeting, October 22-24, have selected Cabell Hall at the University of Virginia as the place of meeting. Plenty of room is available in this building for all scientific and business meetings and commercial and scientific exhibits. Special arrangements will be made to handle automobile traffic and the hall is quite convenient to the cafeteria of the University where lunch and supper may be obtained reasonably.

Dr. L. T. Royster is general chairman from the Albemarle County Medical Society and Dr. W. H. Goodwin is chairman of the University Committee for the celebration incident to the

opening of the new Medical School Buildings. This committee has arranged to have several noted and excellent speakers for their exercises.

Mrs. H. B. Mulholland has been selected as the chairman of the Woman's Committee and will name the members of her committee soon.

### **The Mid-Tidewater Medical Society**

Met at Mathews C. H., on April the 24th. In the absence of the president, Dr. Hawes Campbell, Dr. R. R. Hoskins, vice-president of Mathews, presided. Dr. M. H. Harris, of West Point, was at the secretary's desk. After an enjoyable luncheon at the tea room, the Society was welcomed by Hon. Rufus Manning, a former citizen of Mathews but now a resident of Pittsburgh. The business meeting followed at the court house. Several matters of importance were discussed at length, and several new members admitted. This meeting was the best attended and most enthusiastic that the Society has held and it is hoped there may be many more like it. There were twenty-one doctors in attendance including Drs. Amory, Carleton, Martin and Poindexter, of Newport News, Va.

The next meeting will be held at Sahida on July the 24th, at which time papers on ileocolitis and pyelitis will be read and discussed.

### **The Post-Graduate Medical Society of Southern Virginia**

Held its last meeting at Emporia, April the 9th, with Dr. M. H. Tredway, of Emporia, president, in the chair. Dr. F. N. Mallory, of Lawrenceville, is vice-president, and Dr. Philip Jacobson, Petersburg, secretary-treasurer. Several interesting papers were read and dinner was served following the program. It was decided to hold the May meeting in Blackstone.

### **The South Piedmont Medical Society**

Held its regular semi-annual meeting in Danville, Va., April the 16th, under the presidency of Dr. William R. Martin, of Charlotte C. H. A number of interesting papers were presented and between the afternoon and evening sessions, supper was served at the Burton Hotel. The following are the officers elected for the ensuing year: President, Dr. I. Keith Briggs, South Boston; vice-presidents, Dr. Harry Pritchett, Danville; Dr. John W. Carroll, Lynchburg; Dr. C. W. Tucker, Drakes Branch; Dr. H. H. Hurt, South Boston; sec-

retary-treasurer, Dr. George A. Stover (re-elected), South Boston. It was voted to hold the next meeting in South Boston.

### **Is Your Local Society Active?**

This is a question which officers and members of all local medical societies in the State might well be asking at this time. If not, we urge that you arrange to have meetings, get re-organized, and select your quota of delegates for our meeting to be held in Charlottesville, October 22nd, 23rd and 24th. This is to be a fine meeting, as every one is always interested in the University and everything connected with it. When your Society has the representation in the House of Delegates to which it is entitled, each member is in position to keep in touch with the organization's work through your spokesmen. Be sure that your delegates are elected and select those who plan to attend the meeting.

### **Dr. Leta J. White,**

For the past four years assistant medical inspector for the Richmond City Health Department, tendered her resignation, effective April the 1st, that she might take a course of study and service in the Children's Hospital of Philadelphia. She will remain there for about a year. Dr. White graduated from the Medical College of Virginia in 1924 and served as an interne in Memorial Hospital, Richmond, taking the full course including ambulance service. She is the first woman physician to have been employed by the City of Richmond and, while with the department, was assigned to the inspection of contagious diseases and epidemiology.

### **Dr. Emily Gardner,**

Formerly with the State Health Department with headquarters in Richmond, Va., after a service at the Willard Parker Hospital, New York City, has been given a residency of several months at the Kingston Avenue Hospital, Brooklyn, N. Y.

### **Correction.**

In announcing promotion recently given Dr. Raymond A. Vonderlehr, in our April issue, we failed to name the Service with which he is connected. The notice should have stated that he had been promoted and commissioned in the grade of Passed Assistant Surgeon in the Regular Corps of the Public Health Service. Dr. Vonderlehr is now stationed in Dublin, Irish Free State.

### **Dr. P. K. Graybill,**

Who, with his family, has spent the past several years in Arizona, announces that they will return to Virginia about June the 1st for the summer. They will have headquarters at their former home, Fincastle, Va.

### **The Hoffmann-LaRoche Chemical Works**

Have secured a tract of land at Nutley, N. J., twelve miles from New York City and are there erecting their new laboratories. Ground was broken with appropriate ceremonies last November and the construction work has been pushed with such vigor that it is hoped the Company will be able to move from their present quarters, 19 Cliff Street, New York City to New Jersey early in May. Dr. Emil Barell, Director of the Hoffmann-LaRoche activities in Europe was present at the November ceremonies and turned the first shovel full of earth. Mr. Elmer H. Bobst, General Manager of the Company, made an address full of hope and faith in the growth and success of the Roche organization.

This Company manufactures a large number of Council-accepted products that are advertised in the official State Medical Journals and readers of this Journal will naturally be interested to know of the new developments which make it possible for the Hoffmann-LaRoche Company to greatly increase their production.

### **Information Wanted.**

The Committee of the Medical Society of Virginia on the History of Medicine in Virginia would like to find examples of indenture contracts of early Virginia doctors. The practice of learning medicine by serving an apprenticeship to an established physician was once common in this country and, also, young men immigrating to this country often paid their passage by signing indenture papers.

Please communicate any information you may have about such papers to the Society's offices, 104½ West Grace Street, Richmond, Va., or to the chairman of this committee, Dr. Wyndham B. Blanton, 828 West Franklin Street, this city.

### **Japan's "Floating Prison" for Delinquent Boys.**

A scrapped Japanese warship—the *Musashi*—has been rebuilt to serve as a "floating prison" for boy delinquents, who are to be given a six-month course of instruction in the prac-



tice and theory of navigation, fishing and the making of fishing equipment, weather observation, and kindred subjects while they are on the boat. The announced purpose is to give the boys plenty of work in a healthy sea atmosphere while teaching them a useful occupation. Fifty boys, 14 to 23 years of age, are to be selected for this training from the prisons of the country.

#### **To Meet at Old Point Comfort, Va.**

The Chamberlin-Vanderbilt Hotel at Old Point Comfort, Va., has been selected for the annual meeting of the American Pharmaceutical Manufacturers' Association to be held June 3rd-6th.

The meeting this year will take on an international aspect as invitations have been extended to more than twenty-five leading Canadian manufacturers to attend and participate. Representatives of the British Chemical Manufacturers have also been invited.

Discussion of distribution problems will be one of the principal features of the meeting. This discussion will be led by Mr. Frank A. Mallett, of the Standard Chemical Co., of Des Moines, Iowa.

Closely allied to distribution is the work of the publicity committee. Their report will include the results of a survey of the medical profession which has recently been started to improve the service of the association to the profession.

There will be exhibits of medical advertising by some of the members and many practical advertising and publicity problems will be discussed.

The following committees will have charge of the various sections of the program.

**ATTENDANCE:** Bern B. Grubb, Lafayette Pharmacal Co.

**BUSINESS POLICY:** J. H. Foy, Maltbie Chemical Co.  
**CONTACT:** C. E. Vanderkleed, Robert McNeil (including report of Research Board).

**NATIONAL DRUG TRADE CONFERENCE:** Harry Noonan, Drug Products Co.

**DISTRIBUTION PROBLEMS:** F. A. Mallett, Standard Chemical Co.

**LEGISLATIVE:** C. D. Smith Pharmacal Co. (including report of Councilor, U. S. Chamber of Commerce).

**MEETINGS—Annual:** H. B. Johnson, Zemmer Co.

**MEMBERSHIP:** Dr. C. H. Searle, G. D. Searle & Co.

**MEMORIAL:** B. L. Maltbie, Altamonte Springs, Fla.

**PRIOR RIGHTS BOARD:** R. R. Patch, E. L. Patch Co.

**PUBLICITY:** F. A. Lawson, E. L. Patch Co.

**RESEARCH AWARDS:** Dr. A. S. Burdick, Abbott Laboratories.

**SALES PROBLEMS:** Dr. H. Sheridan Baketel, Reed & Carnrick.

**STANDARDIZATION AND SIMPLIFICATION:** R. M. Cain, Swan-Myers Co.

**STANDARDIZATION OF GLASS CONTAINERS:** C. C. Doll, Zemmer Co.

**TRADE NAMES:** R. R. Patch, E. L. Patch Co.

Speakers of national reputation have been secured for the annual banquet, which will be one of the features of the meeting.

Under the able leadership of Mr. R. Lincoln McNeil who has been president during the past two years, the A. P. M. A. has been very active in all departments of its work. The annual meeting at Old Point Comfort bids fair to be the most successful in the history of the Association.

#### **Dr. Broders to be Honored.**

Upon Dr. Albert Compton Broders, pathologist to the Mayo Clinic, the Medical College of Virginia will confer the honorary degree of doctor of science at commencement, May 28th. Doctor Broders is an alumnus of the School of Medicine of the Medical College of Virginia, Richmond.

#### **Lower Death Rates From Certain Diseases in 1928.**

Scarlet fever, diphtheria, and whooping cough—three of the four communicable diseases which have exacted the greatest toll of life from children, the other being measles—showed lower death rates in 1928 than ever before among the millions of industrial policyholders of a large life insurance company. A slight increase during the year from measles was more than offset by the lower rates for the three others. The rates for two puerperal diseases which together cause more than one-half the maternal deaths reached new low points during the year among the policyholders.

#### **Dr. and Mrs. Walter J. Adams,**

Of Norfolk, Va., left the middle of December last for a tour around the world. A card recently received from India reports that they are having a fine and interesting time seeing the wonders of that and other countries.

#### **Married.**

Dr. Horace Taylor Hawkins, Waynesboro, Va., and Miss Avis Curtis Bernard, Richmond, Va., April 22nd.

Dr. E. Claude Jamison, Rocky Mount, Va., and Miss Ella Virginia Marshall, Mica Va., April 27th.

### Portraits Presented to Society.

At the May 6th meeting of the Norfolk County Medical Society, in Norfolk, Va., portraits of the late Dr. Israel Brown and Dr. Edward E. Feikl, of that city, were presented that Society. A number of interested friends, in addition to members, were present.

### Post-Graduate Course in Ear, Nose and Throat Surgery.

We are informed that there will be a Post-Graduate course in Ear, Nose and Throat Surgery for American Physicians at the University of Bordeaux, France, commencing July 22, 1929. Dr. Leon Felderman, 413 Mittem Building, Philadelphia, Pa., is in charge of registering the American physicians for this course.

### Drs. Richmond J. and Regena C. Beck,

Richmond, Va., have moved to 1103 West Franklin Street, this city. Dr. Richmond Beck announces the opening of offices at this address and will limit his practice to neurology and psychiatry.

### Turkey Requires Health Certificate Before Marriage.

A recent law of Turkey forbids the issuing of marriage licenses except on presentation by each party of a health certificate signed by a Government physician or a private physician whose signature is registered at the local health department. Certificates issued by private physicians must be sent to the local health authorities for investigation. The law requires that the men shall be given thorough physical examinations, and that the women shall have the hands, throat, and mouth examined. All applicants for licenses must present birth certificates.

### Dr. W. J. Rollins,

Of the class of '25, University of Virginia, Department of Medicine, who for the past two years has been resident surgeon at University Hospital, has located in Macon, Ga., for the practice of surgery.

### The American Association for the Study of Allergy

Will hold its next annual meeting in Portland, Ore., Monday and Tuesday, July the 8th and 9th, 1929, at the time of the meeting of the American Medical Association. Further information may be obtained from the secretary, Dr. Warren T. Vaughan, Medical Arts Building, Richmond, Va.

### Dr. W. W. Insley,

Recently of Christiansburg, Va., moved to Roanoke, Va., the first of this month, and opened offices at Williamson Road and Grace Street, where he will be engaged in general practice.

### Dr. and Mrs. Benj. L. Carter's Daughters,

Misses Marjorie Helen and Margaret Ellen, spent the Easter holidays with their parents at their home at Blue Spring Run, Va. The Misses Carter are seniors at State Teachers' College, Farmville, Va.

### Dr. Harvey J. Howard,

Director of the Macmillan Research Fund of St. Louis, and of the Department of Ophthalmology in the Medical School of Washington University, has been elected to the Advisory Board of the National Society for the Prevention of Blindness. Dr. Howard is a leading authority on trachoma, with seventeen years' experience in various medical capacities in China where trachoma conditions are probably the worst in the world.

### Dr. W. W. Seward,

Surry, Va., was elected president of the Bank of Dendron, Va., at a recent meeting of the stockholders.

### Hampden-Sydney—The First Medical School in Virginia.

The recent announcement that Hampden-Sydney is in need has caused considerable interest amongst the medical profession in Virginia. Hampden-Sydney is the second oldest college in the South. It was founded 153 years ago, opening its doors on the first day of January, 1776, and has enjoyed an unbroken record of exceptional service to the Nation and the State. Amongst its charter members were Patrick Henry, James Madison, and Nathaniel Venable, and several members of the First Virginian Conventions.

It is impossible here to enter into any detailed list of the achievements of Hampden-Sydney men. It is enough to say that Hampden-Sydney has given to the nation one President of the United States, ten United States Senators, two cabinet members, twenty-five members of the House of Representatives, and four foreign ministers. Also eleven Hampden-Sydney men have been Governors of states, four of them being Governors of Virginia. As Governor Byrd wrote recently, there were times when every important position in the



State of Virginia from Governor down, was filled by Hampden-Sydney men.

The chief point of interest to the medical profession is that Hampden-Sydney was the first college in the South to have a Medical Department, and this little college, which has never had an enrollment of more than 260 men, has produced over 500 surgeons and physicians.

The opening of the Medical School at Hampden-Sydney came about through a group of doctors in the South. In the early part of the 19th Century, there were several colleges in the South offering degrees in Law, Classics and Theology, but none had a Department of Medicine. This was at a time when the University of Virginia was just commencing its life and the lack of and need for medical instruction in the South was very apparent. It was not until 1838 that the medical profession realized that nearly \$18,000,000 had been spent by Virginia alone for medical education in the North. At that time there was no medical school which could offer a degree south of Maryland. Virginia doctors tried to obtain a charter for their own Medical College in the early part of the 19th Century, and their plea was refused. Then they applied to Hampden-Sydney to grant them the use of its charter. The trustees agreed to this request and it was in 1838 that the Medical Department of Hampden-Sydney was started. After a few years, the geographical position of Hampden-Sydney was found to be undesirable for medical work, and the department removed to Richmond and was situated in Richmond from 1847-1853. It is a curious fact that a mile away from Hampden-Sydney College, at Prince Edward Court House, was the Medical Department of Randolph-Macon College. This was founded by Dr. J. P. Mettauer, of the Class of 1807 at Hampden-Sydney.

There were, of course, scores of distinguished men in the medical profession, produced from Hampden-Sydney long before the Medical School was started. In the very first graduating class of 1786, there is the name of George Cabell, whose professional life was spent in the city of Lynchburg. Since the medical school was closed, hundreds from later generations have passed from Hampden-Sydney into the medical field. There is no space here to list their distinguished names. Today

Hampden-Sydney continues in its curriculum a pre-medical course, stressing the necessity for the four-year period, because "in such an important profession as medicine, a thorough preparation in science, as well as a broad cultural background are so desirable".

After 153 years of splendid service, Hampden-Sydney is facing a crisis. Throughout her history she has lived from hand to mouth, advertising neither her achievements nor her difficulties. She has the lowest endowment funds of any standard college in the United States, either white or colored, only \$167,000. She must raise her permanent endowment funds to half a million shortly or cease to rank as a Standard Grade A College. Efforts are now being made to raise \$225,000 of new endowment money before the first of July. If that is done, Hampden-Sydney can claim a contingent gift of \$100,000 from the General Education Board of America. Some new buildings are also urgently needed but without adequate endowment funds the college cannot continue.

There are about fifty doctors practicing in Virginia who were educated at Hampden-Sydney.

The Headquarters of the Hampden-Sydney Campaign are at the Grace American Building, Richmond.

#### **Doctors Head School Board.**

At the annual meeting of the Richmond (Va.) School Board, the latter part of April, Dr. Roshier W. Miller was elected chairman and Dr. Clifton M. Miller vice-chairman.

#### **Dr. B. R. Caldwell,**

Of the U. S. Veterans' Bureau, announces his change of address from Washington, D. C., to 120 West Maple Street, Rosemont, Alexandria, Va. He will continue his connection with the Bureau as specialist in tuberculosis on the Advisory Group and will also do consultation work.

#### **Dr. Frederick C. Rinker,**

Norfolk, Va., by invitation read a paper at the annual meeting of the Medical Society of the District of Columbia held in Washington, May the 1st and 2nd. His subject was "A Differentiation of the Polymorphonuclear Neutrophile Indicating Infection".

#### **Dr. and Mrs. James McLean Rogers**

And their three children, after a visit to relatives in Virginia and North Carolina,

sailed early in May from New York for their home in Korea. Dr. Rogers is an alumnus of the Medical College of Virginia and has been for about ten years in charge of Alexander Hospital of the Southern Presbyterian Church, at Soonchun, Korea. After stopping at a number of places, they expect to reach their home on July the 5th.

#### **Trachoma Prevention Work of Public Health Service.**

For several years, this Service has been maintaining small hospitals for the treatment of trachoma at strategic points in the affected area. At present such hospitals are being conducted in Kentucky, Tennessee and Missouri with the financial and moral cooperation of those states. Much good has been accomplished by this work. One of the most spectacular cases cited to show the economic as well as the humanitarian value of the work is that of a man who was led into one of the hospitals and was for all practical purposes completely blind. After three months' treatment he returned home with good working vision and at last reports was earning \$100.00 per week as an expert machinist.

Evidence obtained indicates that trachoma still exists to a dangerous extent in several states, though it is not uniformly prevalent throughout any state. Resurveys conducted from time to time show the beneficial effect of trachoma eradication work. The trachoma hospital for the Public Health Service located at Richmond, Ky., equipped to care for about thirty patients, makes trachoma treatment available to an enormous area in eastern Kentucky where trachoma is still quite prevalent.

Records show that in the State of Missouri, which has a Blind Pension Law, 3,152 pensions were operative during one year at a cost to the State of \$200,000. Of these pensioners, 637, or 20.2 per cent, were blind because of trachoma. The cost of this disease in pensions alone in Missouri was, therefore, more than \$40,000 in a single year.

#### **Dr. James W. Keever,**

Recently resident physician at Pine Camp Hospital, Richmond, Va., has moved to Hickory, N. C., where he is engaged in general practice. He is also paying especial attention to diseases of the lungs. Dr. Keever is a member of the class of '27, Medical Col-

lege of Virginia, and was formerly assistant resident in medicine at the Medical College of Virginia Hospitals.

#### **Psychiatric Clinics for Children in the United States.**

There are approximately 470 psychiatric clinics for children in 31 States, sponsored by a great number of institutions and agencies. More than 40,000 children were examined and treated in these clinics during the past year.

#### **Portland Session of A. M. A.**

Everything is progressing splendidly for the annual meeting of the American Medical Association in the lovely city of Portland, Ore., July the 8th to 12th, inclusive. The local committee has arranged for side trips on the day following the close of the scientific sessions, to see something of the wonderful country. Numerous groups are arranging for special trips to and from Portland for the personal contacts. One of the latest of which we have received notice is the "Golf Special" which will be operated from Chicago to Portland and return for doctors, their families and friends. Dr. J. P. DeWitt, 112 Shorb Ave., N. W., Canton, Ohio, will be glad to answer inquiries in regard to this trip.

Whether or not doctors intend to avail themselves of the opportunity to play golf, this is a wonderful opportunity to see some of the country's loveliest spots and the scientific sessions will also add to the interest of the trip. Don't forget the dates—July 8th, 9th, 10th, 11th and 12th.

#### **The West Virginia State Medical Association**

Will hold its annual meeting in Martinsburg, May 21st, 22nd and 23rd, under the presidency of Dr. Harry M. Hall, of Wheeling. As usual, this society has arranged an excellent program and a good time is in store for those who attend. Mr. Joe W. Savage, executive secretary, Professional Building, Charleston, W. Va., will gladly supply information about this meeting.

#### **Dr. Hugh H. Trout,**

Roanoke, Va., by invitation addressed the Ohio County Medical Society at its meeting at Wheeling, W. Va., March the 29th. His subject was "New Principle in Treatment of Ulcers Due to Varicose Veins and Lymphatic Blockage" and this was illustrated with moving pictures.



**To Head School of Dentistry, M. C. V.**

Dr. Harry Bear has accepted the deanship of the school of dentistry, Medical College of Virginia, Richmond, as of July 1, 1929. Doctor Bear is at present professor of exodontia and the principles of practice of that institution. He is also one of the vice-presidents of the American Dental Association. He will succeed Dean R. D. Thornton, who has resigned to return to private practice at Toronto, Canada.

**Dr. Douglas Vanderhoof,**

Richmond, Va., has been appointed by Governor Byrd as a member of the Board of Visitors of the Medical College of Virginia to fill a vacancy created by death of one of its members. Dr. Vanderhoof is now professor of clinical medicine at the College and his appointment to the Board will mean the surrender of his teaching function.

**Dr. W. W. Wilkinson,**

La Crosse, Va., has also been appointed by Governor Byrd to the Board of Visitors of the Medical College of Virginia to succeed the late Dr. Joseph M. Burke.

**The Medical Society of the State of North Carolina,**

At its meeting held in Greensboro, the latter part of April, decided to hold its 1930 meeting at Pinehurst. Dr. L. A. Crowell, of Lincolnton, was elected president, and Drs. William B. Murphy, Snow Hill, William E. Warren, Williamston, and Noah B. Adams, Murphy, vice-presidents. Dr. L. B. McBrayer, Southern Pines, continues as secretary-treasurer.

**The Thomas William Salmon Memorial**

Has recently been established in honor of the late Dr. Thomas W. Salmon, former professor of Psychiatry of Columbia University and Medical Director of the National Committee for Mental Hygiene. The purpose of this memorial is to provide recognition to the scientist who has made the greatest contribution in the fight against mental diseases during each year. Awards are to be national and international and will provide for the wider dissemination of the knowledge of mental hygiene and insanity through cooperation with the New York Academy of Medicine, in whose hands the administration of the \$100,000 fund is to be placed.

For additional information, address Dr. C. C. Burlingame, Room 807, 17 East 42nd Street, New York, N. Y.

**The Virginia State Dental Association,**

At its annual meeting held in Danville, the first of this month, elected Dr. R. F. Simmons, Norfolk, president-elect, and re-elected Dr. A. M. Wash, Richmond, secretary-treasurer. Dr. J. E. John, Roanoke, succeeded to the presidency.

**The American College of Physicians,**

At its meeting in Boston, early in April, selected Minneapolis, Minn., for its next annual meeting place. Dr. John H. Musser, New Orleans, was installed as president. Dr. Sydney R. Miller, Baltimore, was elected president-elect and Dr. George M. Piersol, Philadelphia, secretary.

**Dr. and Mrs. A. D. Parson**

And daughter, Alyce Frances, have returned to their home at Raven, Va., after sometime spent in New Orleans, where Dr. Parson took a special course in urology at Tulane University.

**Addresses U. Va. Medical Society.**

Dr. Walter J. Highman, associate professor of dermatology at Columbia University, College of Physicians and Surgeons, New York, was the principal speaker before the University of Virginia Medical Society at its meeting on April the 15th. Dr. Highman's paper on "Sophism in Dermatology" will shortly appear in the MONTHLY.

**The National Tuberculosis Association**

Will hold its annual meeting in Atlantic City, May 27-30th, inclusive. Headquarters office of this Association are at 370 Seventh Avenue, New York, N. Y.

**New Dean of Georgetown University School of Medicine.**

Dr. John Foote, Washington, D. C., for a number of years professor of diseases of children at the Georgetown University School of Medicine, has been appointed dean of that school, succeeding Dr. George M. Kober, who has been made dean emeritus and a member of the board of regents.

**Dr. Caleb S. Stone, Jr.,**

Now on the surgical service at Barnes Hospital, St. Louis, Mo., will shortly come to Virginia to be resident surgeon at the University Hospital, University, Va.

### **The American Heart Association, Inc.,**

Will hold its scientific session in Portland, Ore., on July the 9th, during the meeting of the American Medical Association. Further information may be obtained from the executive secretary, Dr. I. C. Riggin, at 370 Seventh Avenue, New York, N. Y.

### **The Medical Association of the Valley of Virginia**

Will hold its regular semi-annual meeting in Clifton Forge, Va., on May the 23rd, at which time an interesting program will be presented. Dr. E. R. Miller, Harrisonburg, is president, and Dr. J. F. Fulton, Staunton, secretary.

## **Obituary Record**

### **Dr. Joseph Martin Burke,**

For twenty-seven years chief surgeon of the Seaboard Air Line Railway, died at his home in Norfolk, Va., April the 5th, after having been in bad health for about a year. Dr. Burke was born in Washington, D. C., sixty-seven years ago and studied medicine at the Medical College of Virginia, Richmond, from which he obtained his diploma in 1895. He had been a member of the Medical Society of Virginia since the Fall of that year. Prior to moving to Norfolk, a few years ago, Dr. Burke made his home in Petersburg, Va., and held a prominent place in the social and professional activities of that place. He is survived by five children, one of them being Dr. A. A. Burke, of Norfolk, Va.

The Petersburg Medical Faculty at a meeting on April 6th, adopted the following resolutions on the death of Dr. Burke:

#### **RESOLVED THAT:**

WHEREAS, our Heavenly Father, in His divine providence, has seen fit to take from our midst one of our colleagues, Doctor Joseph M. Burke, of Norfolk, Virginia; and

WHEREAS, Doctor Burke was for many years a member of the Petersburg Medical Faculty and did in this community great good as a physician and attained high accomplishments as Chief Surgeon of the Seaboard Air Line Railroad, while located here, Therefore,

BE IT RESOLVED, That we, the members of the Petersburg Medical Faculty, do hereby express our deep sorrow at the loss of so great a physician and so valuable a friend, and wish to express our sincere sympathy to his family and relatives;

That the Petersburg Medical Faculty attend the funeral service in a body;

That a copy of these resolutions be placed on the minute book of the Petersburg Medical Faculty, published in the local newspaper, in the VIRGINIA MEDICAL MONTHLY, and sent to his family.

WRIGHT CLARKSON, *Chairman.*

L. S. EARLY,

R. A. MARTIN,

E. W. YOUNG, *President.*

### **Dr. Rees Bowen Gillespie,**

Member of the Medical Society of Virginia, died suddenly on April the 4th, at a hospital in New Orleans, his death being attributed to complications following a recent attack of influenza. He was a native of Tazewell, Va., and sixty-eight years of age. Dr. Bowen was a graduate of the Medical College of Virginia in the class of '84 and practiced for some years in Southwestern Virginia before joining the U. S. Public Health Service. For several years past, he had been located at Tampa Bay Quarantine Station. His second wife and several children survive him.

### **Dr. Benjamin L. Dillard,**

Prominent physician of Albemarle County, died suddenly at his home at Scottsville, Va., at midnight of April the 15th. Dr. Dillard was seventy-one years of age and studied medicine at the University of Maryland, from which he graduated in 1882. He was formerly a member of the Medical Society of Virginia. Several children survive him.

### **Dr. W. B. Dodge,**

Well known physician of Stuart's Draft, Va., died at the wheel of his automobile, April the 6th, while engaged in conversation with a friend. Though he had not been well for a month, he had continued active with his work to the end. Dr. Dodge, who was sixty-eight years of age, graduated from the Hospital College of Medicine, Louisville, Ky., in 1884. He had practiced in Augusta County for nearly forty-five years and was a surgeon for the Norfolk and Western Railway. His wife and two sons survive him.

### **Dr. Charles E. de M. Sajous,**

Widely known physician, author of numerous medical books and professor of applied endocrinology in the University of Pennsylvania Graduate School of Medicine, died at his home in Philadelphia, April the 27th, aged seventy-six years. He was graduated from Jefferson Medical College in 1878.



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## SOME RECENT OBSERVATIONS ON ADRENAL FUNCTION.\*

By S. W. BRITTON, B. S., M. D., University, Va.  
Professor of Physiology, University of Virginia.

Considerable controversy has been carried on in this country for more than a decade with reference to the function of the adrenal glands. While the evidence presented by one body of workers (Stewart *et al*)<sup>1</sup> tends to show that the medulliadrenal tissues exert no marked or indispensable influence on life, the results of others (Cannon *et al*)<sup>2</sup> indicate a definitely positive rôle for adrenin secretion in major as well as minor bodily activities. Very little experimental support for the former school of workers appears to have been advanced within the past few years. The more recent investigations of Cannon and his collaborators, however, seem to confirm and establish their earlier results, and, furthermore, a large number of contributors from many quarters have brought forward corroborative evidence, obtained by various experimental methods, of the Harvard investigators. It is proposed briefly to review, in the present paper, particularly, the findings of the latter school of workers.

*The denervated heart for the detection of internal secretion.* The pupillary and intestinal strip methods, and also the test involving the estimation of changes in adrenin content of the glands, have been employed for the determination of adrenin secretion for a number of years. Recent investigations in which animals with the heart completely separated from the nervous system have been used<sup>3</sup> have confirmed many older observations and added considerably to our knowledge of adrenal function. A number of technical difficulties arose in connection with the preparation of animals with the heart fully denervated; in the hands of Cannon and his associates it was eventually found, however, that the nervous influences could be successfully eliminated in a one-stage operation. It was observed, moreover, that under ordinary laboratory conditions the

cardio-denervate animals could be kept indefinitely in apparently normal health. In such animals it will be evident that changes in the blood content alone may readily affect cardiac activity. With due provision having been made for the elimination of such influences as thyroid and hepatic secretions, already known to affect the denervated heart, the presence and influence of the secretion from the adrenal medulla may readily be detected.

Evidence has been furnished<sup>4</sup> that in the cat as small an injection of adrenalin as 0.00068 mgm. per kilo per minute increases the heart rate as much as 34 beats per minute. The isolated heart of the cat is also said to be sensitive to adrenalin in the dilution of 1:1,400,000,000.<sup>5</sup>

Details for the preparation of animals with the heart completely isolated from its nervous control, together with a consideration of the physiological significance of reactions derivable from such animals, may be found elsewhere.<sup>3</sup>

*Emotional activities and the adrenal mechanism.* In a large number of animals (cats) which were observed for periods ranging from a few months to over a year, indubitable evidence<sup>6</sup> of medulliadrenal discharge under many different conditions was obtained. As is well known, cats may fairly readily be stimulated to display typical emotional reactions: the dorsal fur is raised, teeth and claws are bared, and hissing and snarling occur often on slight provocation only. Cats which were subjected to moderate temporary restraint quickly showed such emotional excitement, accompanied usually by only slight muscular activity. Corresponding with such reactions, in animals with the adrenal glands present, the denervated heart was found to indicate by its accelerated rate an outpouring of secretion from the adrenal medulla. In twenty-five cases the cardiac increments were from 20 to 40 beats per minute above the resting rate (usually about 120 in the cat)—and this following periods of excitation lasting only from 5 to 15

\*Abstract of an address given at a meeting of the University of Virginia Medical Society, November 19, 1928, and covering original work carried out in part by the author.

seconds. Minor muscular activity alone, as in walking about the laboratory for one to two minutes, also resulted in a slightly increased adrenin output.

When great emotional excitement with fairly vigorous muscular movement was evoked, as by an aggressive dog brought before the caged cat, there was very striking evidence of adrenal discharge. In over fifty experiments the denervated heart rate rose from 30 to over 110 beats above the quiet, basal level. Usually these maximal increases occurred, also, either synchronous with or within a minute or so after the emotional outburst. From twenty to forty minutes often elapsed, moreover, before basal rates were again recorded, indicative very evidently of the prolonged effect on deep-seated glandular mechanisms of only brief periods (in these cases from twenty to sixty seconds) of emotional stimulation. The possible ultimate influences of such visceral concomitants of excitement on vasomotor, digestive and other important functions can only be conjectured at present.

Similar evidence of medulliadrenal involvement in pseud affective or quasi-emotional reactions in decorticate preparations—animals which had been surgically deprived of cortical (cerebral) control—was also furnished by recent investigations.<sup>7</sup> Correlated with these reactions there were noted large increments in the blood-sugar level; these did not occur, however, in the absence of the normal adrenin secretion.

In a further series of experiments<sup>8</sup> the prepotency of medulliadrenal influence over that exerted by nervous agencies in emotional hyperglycemia was also shown. Noteworthy *diminutions* in the blood-sugar level of 5 to 15 per cent were observed indeed during great emotional excitement in animals (cats, exposed to a dog) which had been medulliadrenalectomized. In contrast, those animals possessing intact adrenal glands but deprived of the nerve fibres normally influencing glycogenolysis showed on similar excitation considerable *increases* in the glycemic percentage. From a number of animals with normal adrenals the hyperglycemic reactions evoked during excitement were very marked, the blood-sugar increases in some cases being from 50 to over 100 per cent above the twenty-four-hour fasting levels. The importance of adrenin secretion in bodily reactions is therefore again

strikingly demonstrated. Medulliadrenal intervention appears to be of significance particularly in the calling forth of readily available fuel for muscular activities which are initiated during conditions of urgency.

*Medulliadrenal secretion and insulin hypoglycemia.* The effect of adrenalin administered during hypoglycemic reactions from insulin in man is well known. It has recently been pointed out that the phenomena which are related to a low blood-sugar level are similar to those observed on adrenalin injection. Wilder and Boothby<sup>9</sup> early surmised adrenal hyperactivity in hypoglycemia.

Proof has now been advanced<sup>10</sup> that augmentation of adrenin secretion—an obviously protective mechanism—takes place during the endangering phases of insulin activity. Further, if the adrenal medulla has been evacuated it is found<sup>11</sup> that animals become five to ten times as sensitive to insulin. Even extremely minute doses of insulin administered months after the medulliadrenal operation (the cortex of the glands being left intact) readily produce severe hypoglycemic convulsions. Small amounts of adrenalin effectively overcome the seizures.

These medulliadrenalectomized animals showed no depreciation, it should be noted, in their hepatic glycogen reserves.<sup>11-12</sup> Muscle glycogen also was present in normal amount. The availability of the glycogen reserves to the interdependent parts of the organism was undoubtedly very much restricted, however, in the absence from the blood stream of the normal secretion of the adrenal medulla.

*Temperature regulation and the adrenal glands.* In the chemical regulation of body temperature the rôle of adrenin secretion once more comes into the foreground. Animals with the heart completely denervated, and surviving in apparently perfect health in the laboratory, have again been used as test objects.<sup>13</sup> On exposure of such animals to cold surroundings, it is observed that, if the adrenal glands are intact, the rate of the denervated heart is gradually accelerated during the time of exposure, to return again to the resting level on withdrawal from the cold. Inactivation of the medullary tissues in the same animals is followed by insignificant changes in the heart rate—sometimes indeed by diminutions—on similar cold exposure.

Conditions which would naturally produce



a lowering of body temperature thus appear to evoke a marked discharge from the adrenal medulla into the circulating blood. The results of the above, and also of a number of other variously-devised experiments, give evidence of a true calorogenic function for normally secreted adrenin.

Some observations in connection with the interesting phenomenon of hibernation<sup>14</sup> may also be given brief reference. To mention first the very remarkable series of changes that take place on recovery of animals from winter sleep—the rapid elevation of the body temperature, the great increase in heart rate and blood pressure, the augmentation of the blood sugar from the hypoglycemic to a normal level, the shivering and general raising of the hairs—these and many other notable changes which are observed have for many decades challenged elucidation.

That the sympathico-adrenal mechanism is largely responsible for the initiation and maintenance of these striking activities is suggested by the experimental evidence which has recently been presented.<sup>14</sup> The administration of minute amounts of adrenalin to insulinized and cooled (artificially hibernating) animals resulted in the appearance of practically all the foregoing phenomena. It was noted, moreover, that animals which had previously undergone adrenomedullary ablation gave no evidence of spontaneous ability to recover their normal body temperature and blood sugar levels, as did the control animals with adrenal glands intact.

The initiation of hibernation, it is also suggested on the basis of a number of considerations, may be related to a natural autumnal depression, in the face of approaching climatic rigors, of the highly differentiated adrenal tissues in thermotactically unstable hibernating organisms. Further work on this subject, however, is necessary, and is at present being planned.

**Conclusions.** Animals with completely denervated hearts, surviving indefinitely in excellent health in the laboratory, have proved of considerable value for the detection of internal secretion. The secretion of the adrenal medulla is shown by these animals to be exceedingly important in connection particularly with the major as well as minor bodily functions.

While the ordinary life processes in an ani-

mal may be apparently well sustained after ablation of the medulliadrenal tissues, the accumulated evidence demonstrates that under certain critical or emergency conditions a marked incompetence of the organism becomes evident. Significant testimony is afforded that there is related to various neuromuscular activities and emotional conditions, to insulin (hypoglycemic) reactions and also to environmental temperature changes, an augmented activity of the adrenal medulla. This hyperactivity subserves the immediate function, at least, of sustaining and preserving the best interests of the organism.

Whether the continuation and extension of exaggerated visceral activities in time may lead to ultraphysiological or pathological sequences is a matter for further experiment and consideration.

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Just take this comfort into your soul,  
In the world of your worries and frets  
The football could never score a goal  
Were it not for the kick it gets.

*Hospital Buyer.*

## THE CUMULATIVE ACTION OF INSULIN: THE PROLONGED ACTION OF IN- SULIN AND ITS PRACTICAL APPLICATION.\*

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### OCCURRENCE, DISADVANTAGE, AND DANGER OF REACTIONS

The occurrence of insulin reactions is perhaps the most annoying problem with which the physician has to deal in the treatment of diabetes mellitus. Hypoglycemic shock is not only distressing but it may be productive of harm and even endanger life. Bodily injury and injury to others during a period of amnesia may result. Insulin shocks may be so discouraging that despite his physician's insistent advice the patient may decide to give up the use of insulin altogether. That repeated depletion of the glycogen store may result in visceral damage, especially of the liver, is a possibility, and recently the removal of glycogen from the cardiac muscle has been offered as an explanation of death occurring occasionally in insulin treated diabetics with cardiac disease. A dozen or more deaths have been reported from the use of insulin and there are references in the literature to instances where lives have been saved only through the quick recognition of hypoglycemic coma and the immediate institution of therapy that restored the lost carbohydrate. A realization of these relatively few adversities, practically all preventable and certainly representing a very low mortality, should not however intimidate the physician and make him return to the older method of treating all diabetics by dietary restriction alone. By the proper use of this remarkably effective agent the diabetic can be restored to well-being and to normal mental and physical fitness, results unattainable without the use of insulin.

### PROLONGED ACTION OF INSULIN AND REACTIONS

In summarizing the insulin reactions that I have witnessed I was particularly struck with the time of their occurrence. Early in the treatment reactions, if they appeared, became evident after any single dose of the drug, and there was no relation to any special hour or

time of the day. In patients under treatment for a prolonged period, in whom the amount of insulin at each injection was reduced in an effort to prevent reactions, it was particularly striking to note that the majority of these reactions occurred in the evening. As these patients were getting two or more doses of insulin a day, and because each dose was so reduced from time to time so that in itself it would not produce hypoglycemic symptoms, determined by experience in each case, it appeared that a likely explanation of the occurrence of these reactions could be based on the hypothesis that insulin might have a cumulative action. References in the literature on work with insulin can be found which encourage such an assumption. Joslin<sup>1</sup> states that: "The action of insulin is immediate, but the full extent of an injection does not reach a maximum for about sixty minutes or cease for some six to eight or even ten hours". Fletcher and Campbell,<sup>2</sup> noting the effect on the blood-sugar after giving 20 units of insulin to a series of diabetics, upon whom they did hourly blood-sugar tests, showed that the action of insulin was still noticeable at the end of seven hours. Fitz, Murphy and Grant reported the effect of insulin on the respiratory quotient in four cases of diabetes. In all of them the quotient was definitely increased. In two cases it was still high on the third day following injection of the insulin. In discussing these findings Campbell<sup>3</sup> states that "this suggests the possible storage of carbohydrate in a form utilizable by the body or a prolonged action of insulin." Campbell goes on to say that there "seems to be a tendency for the high R. Q. to persist over several days, indicating either that the storage complex produced from carbohydrate by insulin requires no further insulin in its catabolism or that insulin has a more prolonged action than has previously been believed".

Maddock and Trimble,<sup>4</sup> investigating prolonged insulin hypoglycemia showed that in a case where two injections were given daily there was a much greater drop in the blood sugar after the second dose of the drug than after the first although the first dose, given before breakfast, was 24 units and the second

\*From the Department of Internal Medicine, Medical College of Virginia, Richmond, Va.

Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

1. The Treatment of Diabetes Mellitus, E. P. Joslin, 1928, p. 40.

2. Fletcher and Campbell, *Jour. Metab. Res.*, 1928, vol. 2.

3. Macleod and Campbell, *Medicine*, 1924, vol. 3, pp. 255-257.

4. Maddock and Trimble, *J. A. M. A.*, 1928 (Sept. 1), vol. 91, p. 616.



dose, given before supper, was 16 units. Following the 24 units the blood sugar dropped to a minimum of 169 mgm.; following the 16 unit injection, despite a previous luncheon taken without insulin and a dinner consisting of 13 grams more carbohydrate than at breakfast, the blood sugar dropped to a minimum of 39 at 2 A. M. Another patient, receiving three injections in the day had reactions only after the last dose, about 9 P. M.

Of course, one dose of insulin, if large enough, will cause a rapid, sharp drop in the blood sugar and a reaction. Such excessive dosage accounts for some reactions, especially in cases just coming under treatment and seen before the carbohydrate tolerance is well esti-

before breakfast, and before lunch. When injections were changed to precede lunch and supper, the reactions occurred in the evening after supper; when the second injection was taken immediately after supper the reaction was only delayed until eight to nine P. M. When this patient was advised to take this second dose at bed-time all symptoms disappeared and for the past four months there have been no reactions. Furthermore, the blood sugar, while previously high before breakfast, is now normal. Case 81 (Table II), after the preliminary experiences with excessive dosage, began to have reactions regularly at 9 P. M. At this time he was getting two injections of insulin a day, one before lunch

TABLE I  
MONTHLY OBSERVATIONS ABSTRACTED FROM RECORD, CASE R. T. B.  
SHOWS CHANGES IN DIET AND INSULIN DOSAGE WITH OBSERVATIONS OF WEIGHT AND BLOOD SUGAR. CASE 3.

DATE 1926 1927	DIET FOOD INTAKE (GRAMS)				INSULIN UNITS				WT. (LBS.)	BLOOD SUGAR (mgm. per 100 cc.)		REMARKS
	P	F	C	CAL.	B.	L.	S.	T.		MAX.	MIN.	
January.....	25	80	45	1,000	20	20	0	40	130	206	96	
February.....	82	160	49	1,964	10	30	20	60	136	241	175	Reactions in P. M.
March.....	94	172	49	2,120	10	30	15	55	140	210	177	
April.....	94	172	49	2,120	10	25	10	45	140	204	194	Reactions in A. M. and P. M.
May.....	93	241	70	2,821	15	25	0	40	142	225	222	
June.....	93	241	70	2,821	15	25	0	40	144	194	...	One sugar estimation made
July.....	93	241	70	2,821	15	30	0	45	147	...	93*	Reaction in P. M.
August.....	93	241	70	2,821	10	20	0	30	146	125*	87*	
September....	93	241	70	2,821	10	20	0	30	143	208	...	Grippe for 5 days
October.....	83	218	91	2,658	10	20	0	30	...	190	...	
December.....	83	218	91	2,658	0	15	15	30	148	250	79	24 hour urine, trace sugar Insulin rearranged.
February.....	83	218	91	2,658	0	15	20	35	146	196	187	Min. blood sugar taken 2 hours after breakfast.
April.....	83	218	91	2,658	0	20	25	45	...	148	116	Last dose insulin immediately after supper. Grippe 8 days
June.....	83	218	91	2,658	0	20	20	40	142	125	97*	Reactions after supper
September....	83	218	91	2,658	0	20	20	40	147	...	87*	
October.....	83	218	101	2,698	0	20	20	40	146	165*	...	

\*Blood taken for blood-sugar determination 2 P. M.—3 P. M. (after lunch). All other blood taken before breakfast.  
B.—Breakfast L.—Lunch. S.—Supper T.—Total.

mated. In this connection it is worth remembering that the glucose equivalent is relatively much larger per unit of insulin with smaller than with larger doses.

As soon as a balance between the carbohydrate intake and the insulin administration is reached, reactions disappear except for the type that occur only in the evening, after a second or third dose.

In my series, case 3 (Table I) was having reactions about three o'clock in the afternoon. During this period the insulin was being taken

and one before supper. He was advised to postpone the supper dose to bed-time, following which his evening reactions disappeared. He had, from time to time, some mild afternoon reactions, as his tolerance increased, but these became milder and then disappeared with the gradual diminution from 30 units to 20 units in the luncheon dose of insulin. This patient had been having rather high early morning (fasting) blood sugars, but since the administration of the second dose of insulin at bed-time these blood sugars have become

practically normal (Table III). It is of value to determine the effect of a single dose of insulin; this will in a great measure bring out its prolonged action and the blood sugar readings so obtained will be of aid in determining the optimum time of a second administration. The practical value of such data cannot be over-emphasized. A blood sugar estimation, taken in the morning before breakfast is no longer an entirely reliable guide as to the dia-

betic status; insulin markedly alters the blood sugar estimations from hour to hour. (Table IV).

THE APPLICATION OF THE PROLONGED EFFECT OF INSULIN

The prolonged effect of insulin, allowing of a cumulative action, can be advantageously utilized in the treatment of diabetes. When two or three doses of the drug a day are neces-

TABLE 2. CASE 81

DATE 1928	DIET FOOD INTAKE (GRAMS)				INSULIN UNITS					WEIGHT	BLOOD SUGAR (MGM. PER 100 CC.)	TIME BLOOD TAKEN
	P.	F.	C.	CAL.	B.	L.	S.	R.	T.			
2-8	Before treatment									112	282	10 A. M.
2-9	Before treatment										277	B. B.
2-10	Before treatment										290	2 P. M.
2-11	70	150	50	1830	0	20	20	0	40			
2-13	70	150	50	1830	0	20	20	0	40	115½		
2-18	70	150	50	1830	0	20	20	0	40		217	10 A. M.
2-20	75	200	60	2340	0	30	30	0	60			
2-27	75	200	55	2320	0	30	30	0	60	114½	244	10 A. M.
3-1	75	200	55	2320	0	30	30	0	60		182	10 A. M.
3-9	75	200	55	2320	0	30	30	0	60	121		
3-14	75	200	55	2320	0	30	30	0	60	122	230	B. B.
3-14	75	200	55	2320	0	30	0	20	50		129	2 P. M.
3-19	75	200	55	2320	0	30	0	20	50	124½		
4-16	75	200	55	2320	0	30	0	20	50		215	B. B.
4-16	75	200	55	2320	0	30	0	20	50	133	82	3 P. M.
5-1	75	200	55	2320	0	30	0	25	55	135	212	B. B.
5-11	75	200	55	2320	0	30	0	25	55	133½	168	B. B.
7-2	75	200	55	2320	0	30	0	25	55		178	10 A. M.
7-2	75	200	55	2320	0	30	0	25	55		98	2 P. M.
7-3	75	200	55	2320	0	30	0	20	50	138		
9-4	75	200	55	2320	0	30	0	20	50	136½	161	B. B.
9-4	75	200	55	2320	0	30	0	20	50		80	2.30 P. M.
9-5	75	200	55	2320	0	25	0	15	40			
9-24	75	200	55	2320	0	25	0	15	40		168	11 A. M.
9-25	75	200	55	2320	0	25	0	15	40		81	3 P. M.

B.—Breakfast. L.—Lunch. S.—Supper. T. Total R.—Retirement. B. B. —Before Breakfast.

TABLE 3

DATE, 1928	BLOOD SUGAR (MGM. PER 100 CC.)
February 13.....	217
February 14.....	230
April 16.....	215
.....	
May 1.....	213
May 11.....	168
July 2.....	178
September 4.....	161
October 12.....	110

Case 81, taking 30 units of insulin before lunch and 20 units before supper. Total insulin daily: 50 units. The pre-breakfast blood sugar readings under this regime are shown above the dotted line.

This patient was then advised to take the same total amount of insulin (50 units), but to postpone the dose previously taken before supper to bed-time. Below the dotted line are the pre-breakfast blood sugar observations made after this change.

TABLE 4

DATE, 1928	BLOOD SUGAR	
	BEFORE BREAKFAST (MGM. PER 100 CC.)	2-3 P. M. (MGM. PER 100 CC.)
*February 9.....	278	290
March 14.....	230	129
April 16.....	215	82
July 2.....	178	98
September 4.....	161	80
September 25.....	168	82
October 12.....	110	85

\*Before treatment started.

Blood-sugar estimations made before breakfast and in the afternoon of the same day (2-3 P. M.) in Case 81. On these days, the patient had no afternoon reaction. It can readily be seen that a second dose of insulin taken before supper might produce evening reactions, as happened in this case, although the entire allotted amount of supper was eaten. A blood-sugar estimations, taken in the morning, before breakfast, is not an entirely reliable guide as to the diabetic status, as a comparison between these "fasting" blood sugars and the afternoon blood sugars brings out.



sary, it is apparent that these should not be too closely spaced. When the proper time of administration is employed, and when the division of the total daily food intake is planned so that its utilization is not too far ahead of the action of the insulin, the occurrence of reactions may be entirely avoided, or certainly reduced to a minimum. Especially is this true when, after a few months of treatment, the endogenous insulin secretion becomes more or less stationary and rapid pancreatic improvement ceases.<sup>5</sup> The blood sugar will be more constantly near the normal level throughout the day and the night. The rather high morning fasting blood sugar, seen even in well

controlled insulin cases, may also be avoided.

After midnight the blood sugar in the diabetic tends to rise, and sugar may appear in the urine, because of the breakdown of glycogen which has been stored during the day. It is nocturnal glycogenolysis that accounts for the high morning blood sugars in diabetes; there has been no intake of food during the night. By giving a second dose of insulin at bed-time, say about 11 P. M., the cumulative action is not only avoided, for under such circumstances it would be fully nine or ten hours after the previous dose, but the undesirable steady rise in the blood sugar occurring during the night is also prevented (Table 3). Some observers give the insulin before breakfast and before supper thereby avoiding in the main the effects of the prolonged action of the drug, but it would seem better to give the second dose at bed-time because the carbohydrate metabolism can then be kept more nearly normal also during the night. Then too, with two doses of the drug a day, it is necessary to keep the carbohydrate of one of the three meals low. A low carbohydrate breakfast can be most conveniently arranged in the planning of diets. A practical and effective method of arranging the diet so that its utilization may be synchronized with the action of the insulin is demonstrated by the diet now used in case 3 (Table 5).

#### DISCUSSION.

DR. T. DEWEY DAVIS, Richmond: This paper of Dr. Lasersohn's brings up one or two practical points. Joslin has emphasized the fact that the problem of diabetes under modern treatment is not so much death from coma as it is death from arteriosclerosis. In other words, we keep the diabetic individual living long enough for him to develop and die of arteriosclerosis. We know that the increase of sugar and fat in the blood of diabetics is a potent factor in the causation of arteriosclerosis. It is common, as Dr. Lasersohn said, for the blood sugar to be increased in the early morning hours because the effect of the insulin has worn off during the night. If we can arrange an insulin schedule so as to prevent this rise in blood sugar it is reasonable to believe that we can at least delay the development of arteriosclerosis. In conclusion, I want to emphasize the point that today arteriosclerosis is the biggest problem in diabetes.

DR. LASERSON, closing the discussion: I think the point brought out by Dr. Davis is a most important one, because, as he said, the well treated diabetic now lives not to die of coma or of other characteristic affections that formerly caused death. He now lives to an age where he may get arterial sclerosis, but he may develop it much sooner than the average person does.

Insulin is given in the manner described not only to prevent the accumulation of sugar, but also to prevent reactions. Reactions discourage the pa-

TABLE 5  
BREAKFAST

	AMT.	P	F	C
Orange Juice.....	100	0	0	11
Bacon.....	40	4	27	0
Egg.....	Two	12	12	0
Cream.....	50	1	8	2
Butter.....	20	0	17	0
Coffee.....	Cup	—	—	—
Total.....		17	64	13

#### LUNCH

	AMT.	P	F	C
Meat (approximate values):	150	30	30	0
Round Steak				
Porterhouse				
Tenderloin				
Roast Beef				
Vegetable 5%.....	100	1	0	3
Vegetable 5%.....	100	1	0	3
Vegetable 10%.....	100	1	0	6
Bread.....	20	2	0	10.5
Butter.....	50	0	42.5	0
Mayonnaise.....	15	0	12.5	0
Cream.....	100	2.5	16	4.5
Banana.....	100	1.5	0	21
Clear Broth.....	200	0	0	0
Coffee.....	Cup	0	0	0
Total.....		39	101	48

#### SUPPER

	AMT.	P	F	C
Clear Broth.....	Bowl	0	0	0
Ham.....	100	16	30	0
Vegetable 5%.....	100	1	0	3
Vegetable 10%.....	100	1	0	6
Egg.....	One	6	6	0
Butter.....	20	0	17	0
Orange.....	100	0	0	11
Bread.....	20	3	0	10
Coffee.....	Cup	0	0	0
Total.....		27	53	30

#### SUMMARY

	P	F	C	I
Breakfast.....	17	64	13	0
Lunch.....	39	101	48	15
Supper.....	27	53	30	10
Total.....	83	218	91	25

5. Lasersohn, M.: The Curability of Diabetes Mellitus, Va. Med. Monthly, June, 1927.

tient, they upset him, and they may also be harmful. Several of these patients have been arrested in an amnesic state, and other injustices may be done them. We should do what we can to prevent reactions.

I think, however, that the dangers of insulin have been overemphasized. It is not a very dangerous drug to use if one knows something about it. Some physicians are afraid to give it, and a number of diabetics are not getting enough of this valuable drug. The danger from not getting enough is as great as from getting too much insulin.

THE REACTION OF THE NEGRO TO BILATERAL OOPHORECTOMY.\*

By RICHARD H. MEADE, JR., M. D., University, Va.

That negroes react less markedly to loss of ovarian tissue than do whites is an impression held by many surgeons. A search of the literature as far back as 1892, however, has failed to disclose a single article dealing with this subject. Because of this dearth of data it has seemed worthwhile to make a study of a series of unselected cases of bilateral oophorectomy in negroes and in whites extending over a period of five years. Accordingly, an attempt was made to get in touch with all patients who during their active menstrual life had had bilateral oophorectomies performed on them at the University Hospital since January, 1923. There were one hundred and twenty in this group. Of this number sixty-two, or 51 per cent, were followed by letter or visit. One was dead, and three proved not to have had complete operations. This gave a series of thirty-nine negroes and nineteen whites. All but twelve of these had had hysterectomies as well as bilateral oophorectomies done, but as the number is small and their reactions similar to the others they were included in one group.

In order to rule out, as far as possible, any discrepancies that might result from differences in ages and post-operative periods, studies of the cases from these aspects have been done. Furthermore, the cases have been analyzed according to the extent of ovarian inflammation at the time of operation.

CLASSIFICATION OF REACTIONS

The usual manifestations of complete loss of ovarian tissue were found in the majority of the patients in this series. As was to be expected, hot flushes were most frequent. They varied in severity from mild occasional ones to those making life quite miserable. Other

symptoms less frequently encountered were vertigo, palpitation, headache, insomnia, cold extremities, and varied types of nervousness. For purposes of classification these reactions have been termed mild, or marked.

In the symptomless group there was a larger percentage of white women, while in the groups of mild and marked symptoms the reverse was found to be the case. In this whole series only five patients had severe reactions, four were negroes and one was a white patient. The latter was a woman of thirty-six who had been operated upon six months previously because of multiple fibromyomata of the uterus. Her ovaries, except for the pres-

REACTION TO BILATERAL OOPHORECTOMY

TABLE I. GROUPING ACCORDING TO SEVERITY OF SYMPTOMS

	No.	%	AVERAGE AGE	POST-OPERATIVE PERIOD
No symptoms				
White. . . .	6	31.6	42	21 months
Negro. . . .	8	20.5	40	21 months
Mild Symptoms				
White. . . .	12	63.1	35	22 months
Negro. . . .	27	69.2	35	27 months
Marked Symptoms				
White. . . .	1	5.3	36	6 months
Negro. . . .	4	10.3	32	14 months

ence of small cysts, were normal. At the time of her report she was having very severe hot flushes, was irritable, and nervous, and could not sleep. Three of the negroes were operated upon for similar reasons, while the fourth had had an extensive inflammatory process involving her tubes and ovaries. She was only twenty-four and, when reporting three years after operation, complained of extreme nervousness, severe hot flushes, night sweats and cold extremities. (Table I).

RESULTS ACCORDING TO AGE GROUPING

Patients were grouped according to their ages and a study of their reactions made on this basis. In the group from eighteen to thirty, all of the five white patients presented mild symptoms, while one negro had no symptoms, seven of the nine negroes had mild ones and one reported marked symptoms. In the next age period, thirty-one to forty, a smaller percentage of negroes were free from symptoms, (25 per cent against 50 per cent). And

\*From the Department of Surgery and Gynecology of the University of Virginia, and the University Hospital.  
Read before the fifty-ninth annual meeting of the Medical Society of Virginia, Danville, Va., October 16-18, 1928.



this was also true in the patients of forty-one or more. (Table II).

REACTION TO BILATERAL OOPHORECTOMY  
TABLE II. GROUPING ACCORDING TO AGE

	No.	No SYMPTOMS	MILD SYMPTOMS	MARKED SYMPTOMS
18 to 30 Years				
White.....	5	0	5 or 100%	0
Negro.....	9	1 or 11%	7 or 78%	1 or 11%
31 to 40 Years				
White.....	6	3 or 50%	2 or 33.3%	1 or 16.7%
Negro.....	20	5 or 25%	13 or 65%	2 or 10%
41 and over				
White.....	8	3 or 37.5%	5 or 62.5%	0
Negro.....	10	2 or 20%	7 or 70%	1 or 10%

#### RESULTS ACCORDING TO POST-OPERATIVE PERIOD

In studying the reactions of the patients from the standpoint of the duration of the post-operative period, the negroes are found, on the whole, to have had slightly more symptoms but as a glance at the table will show the differences are slight. In the three to twelve

REACTION TO BILATERAL OOPHORECTOMY  
TABLE III. GROUPING ACCORDING TO  
POST-OPERATIVE PERIOD

	No.	No SYMPTOMS	MILD SYMPTOMS	MARKED SYMPTOMS
3 to 12 months				
White.....	8	3 or 37.5%	4 or 50%	1 or 12.5%
Negro.....	12	4 or 33.3%	5 or 41.7%	3 or 25%
13 to 24 months				
White.....	5	1 or 20%	4 or 80%	0
Negro.....	12	2 or 16.7%	10 or 83.3%	0
Over 24 Months				
White.....	6	2 or 33.3%	4 or 66.7%	0
Negro.....	15	2 or 13.3%	12 or 80%	1 or 6.7%

months' group, there was indeed a slightly greater percentage of whites having mild symptoms. (Table III).

#### RESULTS ACCORDING TO OVARIAN PATHOLOGY

When the patients were grouped according to whether or not both ovaries were involved in an inflammatory process, the same parallelism was found. The negroes in general again show a higher percentage of symptoms. There were, however, relatively fewer negroes than whites having mild symptoms in the group with unilateral or no ovarian pathology. (Table IV).

REACTION TO BILATERAL OOPHORECTOMY  
TABLE IV. GROUPING ACCORDING TO OVARIAN PATHOLOGY

	No.	No SYMPTOMS	MILD SYMPTOMS	MARKED SYMPTOMS
Bilateral Ovarian Pathology				
White.....	8	3 or 37.5%	5 or 63.5%	0
Negro.....	22	4 or 18.2%	17 or 77.3%	1 or 4.5%
Unilateral, or No Ovarian Pathology				
White.....	11	3 or 27.3%	7 or 63.7%	1 or 9%
Negro.....	17	4 or 23.5%	10 or 58.8%	3 or 17.7%

#### SUMMARY

During the period from January, 1923, to January, 1928, one hundred and twenty bilateral oophorectomies were performed at the University of Virginia Hospital, on women during their active menstrual lives. Of this number sixty-two, or 51 per cent, were followed by letter or visit. One was dead, and three proved not to have had complete operations. This gave a series of thirty-nine negroes and nineteen white. A study of their vasomotor and nervous reactions was made and the results grouped according to age, length of post-operative period, and extent of ovarian pathology. In this small series the negroes showed a slightly higher percentage of symptoms but as the number of cases has increased this difference has become less marked. It, therefore, seems probable that negroes react in general much as do whites to the total loss of ovarian tissue.

#### DENTAL SCIENCE VERSUS DENTAL PROPAGANDA.\*

By JOSEPH HEAD, M. D., D. D. S., Philadelphia, Pa.

Decay is not a normal condition of the mouth. Cleanliness of the teeth and gums will absolutely prevent decay. Up to the present all methods of cleansing the mouth have been failures as they have not thoroughly removed the mass of infection from between the teeth and the surface of the gums.

It is beginning to be recognized that five or ten minutes a day properly expended will really cleanse the teeth and gums if the disease has not progressed beyond the superficial stage, and if the disease is within the possibility of actual contact of the toothbrush and the dental floss.

\*Read before the Seaboard Medical Association of Virginia and North Carolina, at Washington, N. C., December 4-6, 1928.

The daily cleansings cause the gums to heal and render them less likely to receive infection in the future. In plain words, it is recognized that the principle discovered by Pasteur still holds, that infection can only occur in the presence of infective material, and that a clean tooth will not decay.

The film or scum that ordinarily collects upon the teeth and gums is not food deposit, it consists of masses of bacteria that attack the tissues, and if undisturbed, break down the vital resistance and form lodgements which send constant streams of poison and bacteria throughout the body.

Figure 1 represents two lower teeth at approximately the age of ten. The shading shows the healthy bone around the roots. The line A at the neck of the teeth shows the normal gum line. The space between the teeth and around the gum is clean because the dental nurse or mother of the child has used the dental floss to wipe out the space each day, and then the toothbrush to scrub the teeth and gums so that they are clean. If all the teeth can be kept as clean as shown in Fig. 1, decay will not occur, gum infection will be prevented, and the chances against rheumatism,

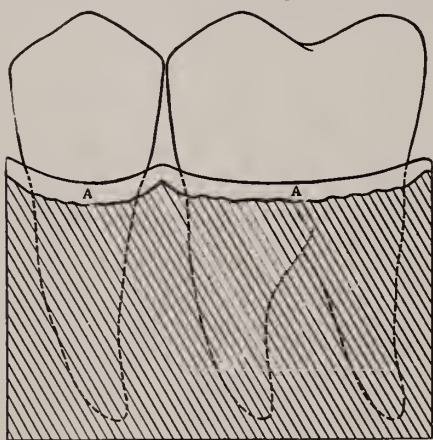


Fig. 1.—Shows two normal clean teeth. The line A represents the gum margin; the shading, the bony sockets supporting the teeth in the jaw.

heart disease, ulcer of the stomach, and many other fatal diseases will be reduced 50 per cent.

Figure 2 represents similar teeth in another child aged ten, where efficient cleansing has not been performed. The mass of small worm-like lines around the gum margins and the space between the teeth, represents the disease-spreading infection covering the gums that are now outlined by a dotted line. This mass at

the exposed sides of the teeth can be cleansed by the brush, but the mass at B, between the teeth, can only be cleansed by dental silk, and unless dental silk is used daily and unless a small brush skillfully used scrubs the necks of the teeth clean each day, the gums and bone

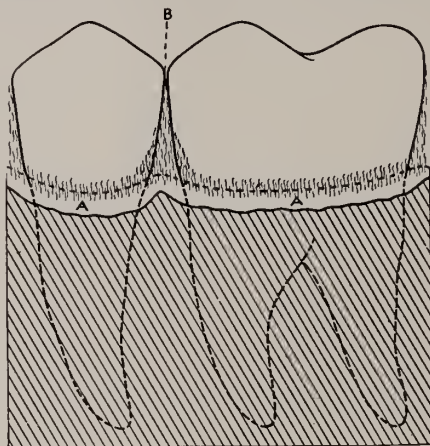


Fig. 2.—Shows the same teeth as in Fig. 1, except that they are dirty through lack of proper cleansing. The little worm-like lines represent the infection. Note the mass of bacteria in the space B that can only be cleansed by the dental floss.

will be progressively diseased as is shown by the following series of illustrations.

Figure 3 illustrates the condition of the gum and bone between and around the teeth at approximately the age of fifteen years when

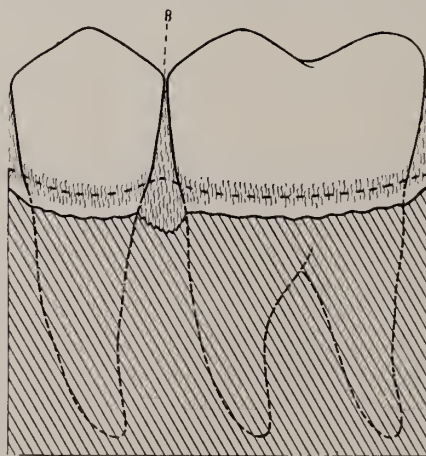


Fig. 3.—The beginning of a pyorrhea pocket starting between the teeth. Note the absorption of the bone at the bottom of the space B.

the infection between the teeth has been growing undisturbed for at least five years. This is the critical time for the health of the child's teeth and gums. Even yet, if the dental floss is ruthlessly swept along the triangle B, the



space between the teeth can be restored to health. The gums by this time are swollen and red, while the slightest touch to the tissue between the teeth will cause pain and a free flow of blood. The absorption and roughness of the bone between the teeth show the beginning of the infected spot that is to grow into a pyorrhea pocket.

The curative action of the dental floss is twofold. It mechanically removes the mass of infection, and it rubs the germs into the gums so that the tissues are stimulated to form a protective ferment that will destroy any individual germ that attempts further advance, and at the same time the ferment increases the resistance of the gums to any further infecting attack. In plain words, it vaccinates the gums.

Of course some infections are much more aggressive and poisonous than others, and therefore this crisis may come much more quickly to some teeth than others; it may come as early as twelve or as late as twenty-five years of age, just as there is or is not protective action of the saliva or of the tissues. When the infection has really become intrenched in the substance of the gum and bone, as in the triangle B, it penetrates with

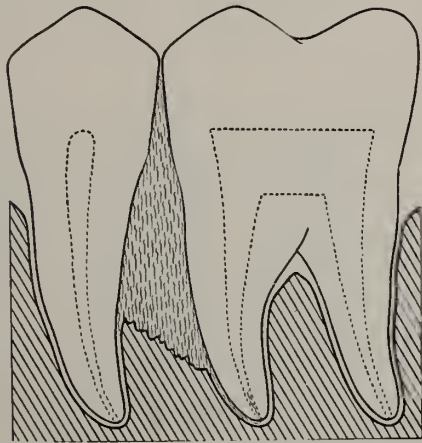


Fig. 4.—The further progress of the pyorrhea pocket which is now well established. The picture shows the cross-section of the teeth and gum. The outer bony plate has been removed, showing the bone only on the side.

great rapidity along the roots. This makes the much-talked of pyorrhea pocket. The gums on the sides being partly swept by the food, recede more slowly, so that external observation may reveal the gums at almost their normal size, while deep pockets may have formed as shown in Fig. 4.

Figure 4 is now drawn as a cross-section with the outer bony plate removed from the roots. Thus we can see the progress of the pocket beneath the gum as revealed by the area of little worm-like lines that even now have dissolved the bone and have worked along the root membrane of the molar, so that the nerve is beginning to be infected. There may be no decay in the crown of the tooth, and externally the tooth may appear quite normal except for a slight tenderness to pressure and an extra sensibility to heat or cold. Such a pocket may form here and there in the mouth where the infection has found exceptional opportunity for growth, while the gums on either side of the pocket may be as high as the gums shown on the outer sides of the teeth in Fig. 4. Such a pocket appears between the ages of twenty-five and forty years,

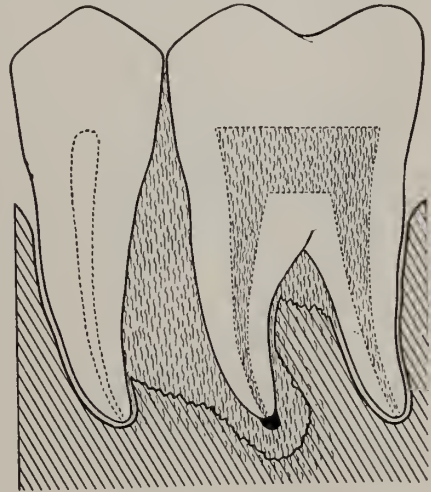


Fig. 5.—A fully established pyorrhea pocket with an abscess at the tip of the molar. The black spot represents the abscess.

and can only be cured by radical surgery and long treatment. But all of this destruction and toxic poisoning could have been prevented by the skillful daily use of the tooth silk and brush. The destructive enlargement of the pocket from now on is extremely rapid, as is shown in Fig. 5.

The bone around the tip of the adjacent molar root is completely diseased and is replaced by a spongy mass of infection. The germs have penetrated the tip of the molar root, destroying that portion of the nerve and causing the acute abscess sac to form, as is shown by the black spot. Thus we have a dead nerve in one root while the nerve in the other root is alive. The tooth is painful and

loose. Each time the tooth is used in chewing food the infected root is jammed on the spongy infection beneath, so that the poison and germs are driven into the bone substance, where the circulation carries them to all portions of the body to lodge and form new foci of infection.

Those portions of the body that have the weakest resistance receive this injected material, whether it be the joints, the heart, the stomach, the nerve centers, or the liver, and thus a tooth externally undecayed and apparently normal in appearance may be the cause of a crippling disease, and all because the teeth were not cleansed for a period of five minutes once or twice a day. It will be noted in Fig. 5 that the worm-like lines of infection have almost reached the tip of the other tooth.

Figure 6 shows a further progressive stage. One root of the molar has become absorbed and roughened with sharp, needle-like points, while abscess sacs have formed on the other two roots, so that all three of the roots during the process of chewing now act like pistons of a syringe, forcing the infection into the blood-stream. At first the body resists the poison, but as it is driven in day by day, week by

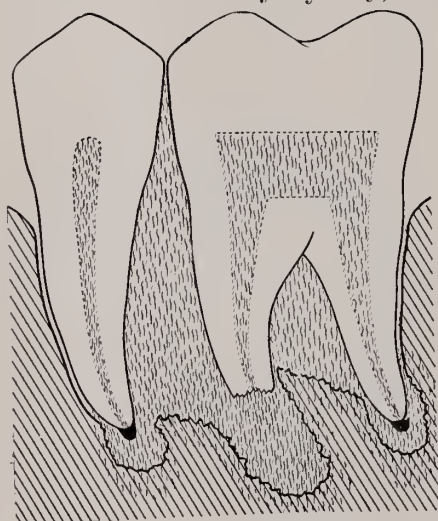


Fig. 6.—A pocket that is spreading infection to the other teeth.

week, year by year, the systemic health resistance is broken down, and the patient becomes permanently diseased. Such teeth at first may be sore or sensitive to cold or heat, but as the disease becomes chronic the pain disappears and the teeth seem almost normal in their functions. The greatest infection may come from a tooth that has become abscessed and

apparently recovered, since the fact that a tooth is comfortable, normal in appearance, and useful for chewing food is no guarantee that it may not be the spreader of infection, which within a comparatively short time will cause crippling neuralgias or death-dealing abscesses in the vital organs of the body.



Fig. 7.—Teeth that have never been properly cleansed.

Figure 7 shows the mouth of a woman who did not cleanse her teeth and gums, and Fig. 8 shows the deformity of her hand which was typical of a disease that resulted in her becoming a complete cripple and led eventually to her death.



Fig. 8.—Deformity due to unclean teeth.

Let us again remember that this terrible source of disease would be eliminated by proper mouth cleansing. We have seen how the deadly pus pocket can form in the jaw bone when there is no tooth decay; let us now



examine how the same type of bone abscess can be formed by decay in the crown of the tooth.

Figure 9 shows two such cavities forming.

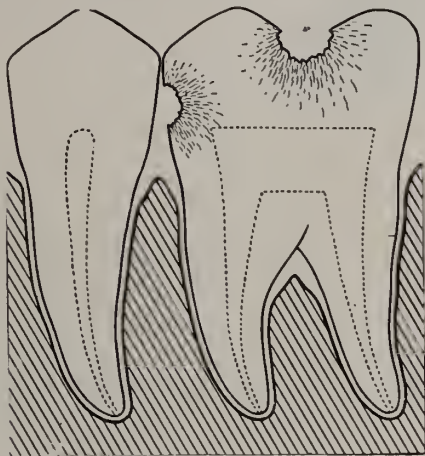


Fig. 9.—Spots of tooth decay due to lack of cleanliness.

Figure 10 shows a further progress of infection where the nerve is reached.

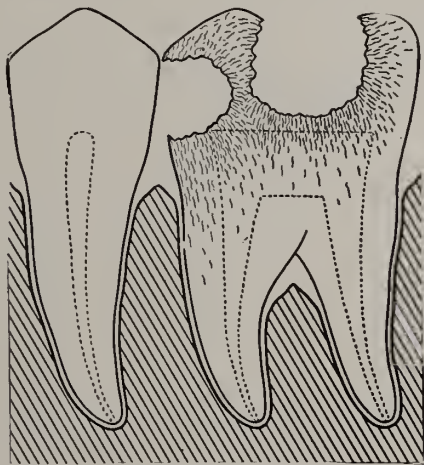


Fig. 10.—Tooth decay advanced to the point of nerve infection.

Figure 11 shows a putrescent nerve with the same type of bone abscess at the root tip as we have already seen in Figs. 5 and 6.

Cleanliness would have prevented all of this trouble. If the space between the teeth had been kept clean the cavity on the side of the tooth would not have occurred, and if the fissure on the crown of the tooth had been polished by the dentist so that food could not jam into it, the grinding surface would have been self-cleansing; thus the cavities would not have formed and the infection-spreading

bone abscesses at the tips of the roots would have been prevented.

Thus we see how easy it is for a dentist and a patient to prevent decay before it starts, and how difficult, and finally how impossible, it is to remedy the trouble except by the extraction of the teeth and the scraping away of the diseased jawbone. This warns us not only to see that our teeth and gums are kept clean, it also urges us to visit the dentist so

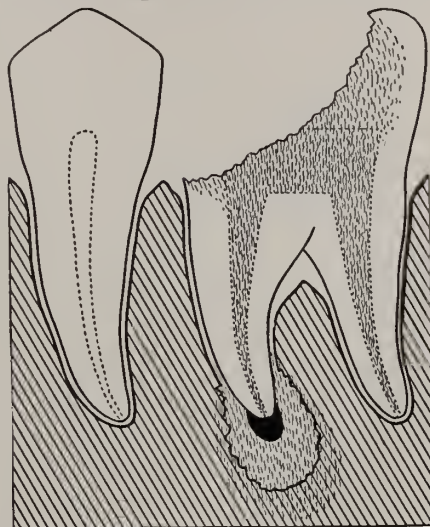


Fig. 11.—Tooth decay that has attacked the dental nerve and formed and infection-spreading bone abscess at the root-tip.

that any defects of tooth development may be remedied. For when that is done skillfully and the teeth have erupted so that they can be kept clean, thorough cleansing of the teeth and gums with brush and tooth silk will prevent mouth infection with all of its consequent systemic diseases.

Let us now consider the proper method of cleansing the teeth and gums: In a large majority of cases the pyorrhea pocket of infection starts between the teeth, and as the tooth silk alone can cleanse the tooth spaces, the efficient use of this important and much neglected agent of mouth hygiene will now be discussed.

Figure 12 shows the space between the teeth packed with a bacterial mass that is always present if the dental silk is not used properly. Dental silk heretofore has been supposed to be used solely for the purpose of removing particles of food from between the teeth, and while this is unquestionably important, it is far more important that the mass of bacteria shall be thoroughly removed before it can

gain lodgement in the teeth and the gum. But because the dental silk has been used solely with the idea of removing food particles, where food did not pack between the teeth the den-

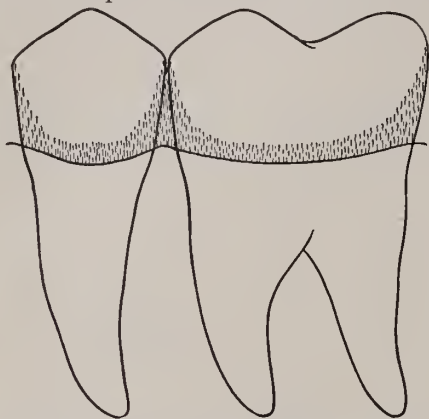


Fig. 12.—The small worm-like lines indicate the mass of infection usually found around or between the teeth unless dental floss and small toothbrush have been properly used.

tal silk has not been used at all, and where it has been used it has been slipped in and out in a straight line to the gum, making only a cut in the bacterial mass as in Fig. 13, leaving the gum and tooth surface as much cov-

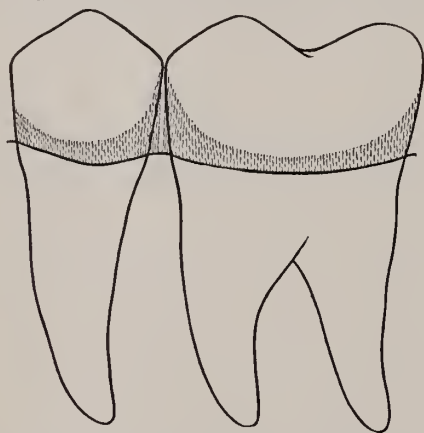


Fig. 13.—Bacterial mass between the teeth cut but not removed by the wrong way of using the dental floss.

ered as before it was used. The silk when used should extend well around the contours of the tooth surface (see Fig. 14), for the bacteria are very adhesive and stick to the infected tooth and gum surfaces with all the tenacity of glue. No mouth-wash can kill or remove a mass of bacteria. It is, therefore, essential that the dental silk should be scraped along the rounded contours of the three sides of the triangular space between the teeth, so that only the slightest film of bacteria will be left. The mass of bacteria will come out on

the tooth silk. It is particularly important that the mass of infection should be thoroughly removed from around the curving sides of the

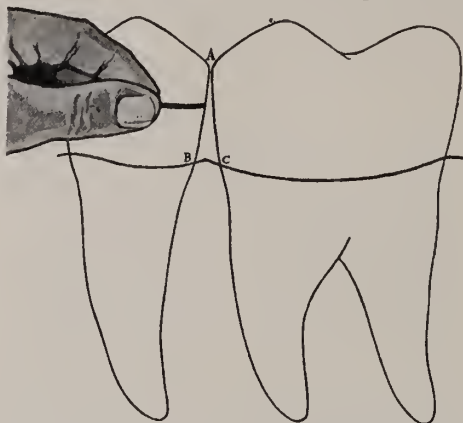


Fig. 14.—Shows the way the dental floss should extend around the contours of the teeth during the process of cleansing.

tooth so that the toothbrush can readily remove all of the remaining film, and so render the mouth free from masses of bacteria, for a thin film of germs cannot produce an amount of poison or acid sufficient to harm either the gums or the teeth.

Figure 15 shows the space cleaned by the removal of the mass through its adherence to the dental silk. It will be noted that at the sides of the teeth near the gum a considerable portion of the germ deposit has been scraped away by the encompassing sweep of the silk. To make it quite simple, let the triangle, Fig. 16, represent the space between the teeth. The lines A-B and A-C represent the sides of the

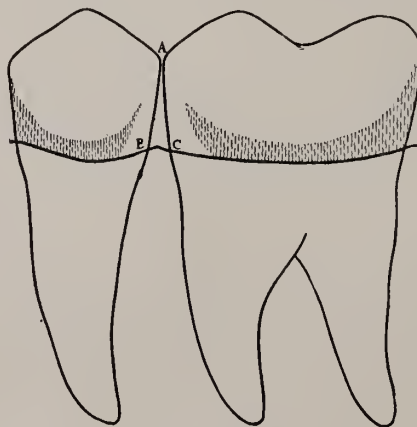


Fig. 15.—The extent of cleansing that properly used dental floss can effect.

teeth. The line B-C represents the gum line between the teeth. The dental silk should start at the grinding surface A, scrape down to B, then scrape from B to C, and finally



from C to A, and out, carrying the bacteria away on the silk.

Properly used, the dental silk is far more important as a means of cleansing and preserving the teeth and gums than the toothbrush. When this use of the dental silk has been performed on all the tooth spaces, and

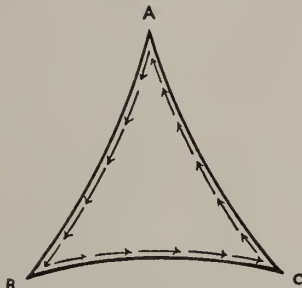


Fig. 16.—Diagrammatic representation of the space between the teeth. The arrows indicate the path which should be followed by the dental floss.

especially on the gum margins back of the back teeth, three-fourths of the bacterial mass in the mouth will have been removed, and the remainder can readily be cleansed by a small brush properly used.

**THE LOOP METHOD OF FLOSSING TEETH.**—Where there is much recession and loose folds of gum around the individual teeth, the loop method of flossing the teeth and gums should be used, as is shown in Fig. 17.

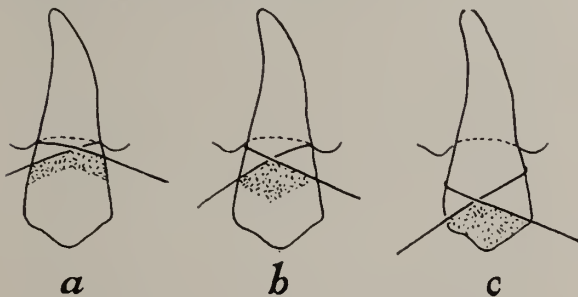


Fig. 17.—Loop method of using dental floss.

In a, Fig. 17, the loop is passed around the neck of the tooth and crossed so that it slips under the gum. The underneath string is then pulled so as to give the silk a sliding motion of about an inch, and then the loop is raised up by the underneath string and slipped over the crown of the tooth, sweeping the entire surface of its bacteria, as in Fig. 16a, b and c.

This is not an easy performance to execute efficiently so that the deposits will be thoroughly removed. The gums will bleed at first and will be sore for a period of ten days to two weeks, but a trial of this procedure dur-

ing the time mentioned will give a feeling of cleanliness never before experienced, and the gums, ceasing to bleed, will become pink, firm, and comfortable.

Let us now consider the use of the toothbrush as a means of removing the bacterial masses from the exposed surfaces of the teeth and the gums. Just as those who never use dental silk never cleanse between the teeth, so do the great majority of those who brush the teeth never really cleanse them.

The brushing of the gums, as before stated, is of importance, but the intense pain occasioned by the first week's work is as severe as the pains in the back of an athlete when he first starts to get himself into condition. The trainer tells the athlete to go on with his work and that it will be all right, and in the same way the poor patient, though he fears that he is injuring his gums when he uses the brush vigorously, must be encouraged by his dentist to continue, with the assurance that the pain in his gums will soon disappear. The author once showed a young lawyer how to brush his teeth and gums. He went away and the next day the author received a letter from him threatening suit for having ruined his face. Amusing as this incident is, it has a very serious bearing. The gums, to be healthy, must be scrubbed so as to remove the bacterial masses, and also the dead epithelial scale, which will act as a bacterial food. Scrubbing infected gums cannot result at first in anything but further infection, that may, and frequently does, cause a slight fever, and yet the bacteria cannot be removed and the gums will not heal unless this severe ordeal is endured. The systemic reactions caused at times by brushing infected gums must be explained as a process of vaccination, for under no other supposition is it possible to explain why, under the newly inaugurated thorough brushing day by day, the gums should continue to be sore and inflamed, and then suddenly, between the seventh and tenth day, become healthy, hard, and firm, thereafter standing with complacency any amount of brushing.

The toothbrush should not be over  $1\frac{1}{2}$  inches long, the bristles not over  $\frac{1}{4}$  inch long, and the handle long and large enough to afford a firm grip to the hand (Figs. 18, 19). The principal thing to be avoided is too great bristle length, since long bristles, by increasing the pivoting arc of each bristle, just so much

reduce the bristle friction produced by the general movement of the brush. It is bristle friction alone that cleanses the teeth and gums during the process of brushing. Bristles  $\frac{1}{2}$  inch long can pivot  $\frac{3}{8}$  inch each way without bristle friction. If, therefore, there is a 1-inch stroke, the bristle friction stroke is only



Fig. 18.—Actual size of brush that can properly cleanse the teeth and gums.

$\frac{1}{4}$  inch, and if, as frequently happens, the toothbrush stroke is only  $\frac{3}{4}$  inch, there is no bristle friction stroke at all. The  $\frac{1}{4}$  inch bristle, under the same conditions, would have a play each way of  $\frac{3}{16}$  inch, which theoretically would cause only  $\frac{3}{8}$  inch loss of bristle friction, but, in reality, it would be less, since the further the bristle extends from the back of the brush, the more readily it bends under pressure. But granting that there was  $\frac{3}{8}$  inch loss in bristle friction to each stroke, this



Fig. 19.—Actual size of brush ordinarily used.

would still leave a real cleansing friction stroke of  $\frac{5}{8}$  inch, when the  $1\frac{1}{2}$ -inch brush was moved through a  $2\frac{1}{2}$ -inch stroke, the amount of space for toothbrush motion usually found in the average adult mouth.

So much for the mechanics of toothbrushing; now as to the actual motions as applied to the human mouth. There are three motions: First, the rotary motion, whereby all the gums and teeth anterior to the second molars are cleansed with vigorous whirling action; second, the drawing motion, wherein the middle of the brush is placed behind the

last molar and drawn vigorously across the outside gum margins of the teeth; third, the drawing motion, wherein the brush is placed back of the last molar inside of the mouth and drawn sharply forward along the gum margins and the teeth. In each stroke care should be used to follow the curve of the arch with the entire face of the brush.

After so much minute explanation it may not be inadvisable to review once more just what the daily cleansing of the mouth should be. The surfaces between the teeth should be thoroughly swept by dental floss to remove all food and bacterial deposits. The teeth and gums should then be thoroughly brushed, as described, with a gritless dentifrice or antiseptic mouth-wash, and the saliva and mouth-wash vigorously swashed in between the teeth for a period of not less than two minutes, so that the thin coating of bacterial film left by the dental floss on the sides of the teeth may be discouraged from growth until the next cleansing. Where there is marked gum infection a saturated solution of sodium silicofluorid or 1 or even 3 per cent peroxid solution should be held in the mouth for at least two minutes after the procedure just described. A pinch of bicarbonate of soda should be put into the peroxid solution before rinsing to insure its alkalinity. This cleansing should be carried out morning and evening. It must not be forgotten, however, that each mouth is a separate problem and must be treated as such. If teeth are missing, the brush must be inserted vigorously in the vacant spaces, and if certain abnormal rotations are necessary the dentist must train the patient to see that these abnormalities are met and the parts are thoroughly cleansed by especially devised strokes of the brush.

These principles of mouth hygiene have been recognized by educators for the last ten or twenty years. The dental clinics and mouth hygiene methods described and advocated by Wood and Rowell\* show that various communities throughout the country are making a determined effort to start the children with healthy mouths. But these self-sacrificing teachers and dental nurses can only succeed if their teachings are backed up by the medical profession at large, and if they can obtain the intelligent cooperation of the parents.

Imagine the ordinary mother of six chil-

\*See Health Supervision and Medical Inspection of Schools, Wood and Rowell, p. 232.



dren carefully supervising and if necessary personally cleansing 156 teeth a day, in addition to all her other maternal and household duties.

Imagine what chance a child has of being able to effectively cleanse its own teeth without supervision. Not one chance in the world. And ordinarily the mother doesn't know how to cleanse her own teeth, and if she does she usually doesn't appreciate its importance sufficiently to take the time to do it.

As one who has practiced dentistry forty years, and has during this time earnestly striven to advance the science of mouth hygiene, I find that not 50 per cent of my intelligent patients consistently keep their teeth decently clean. They fiddle with the toothbrush so that the front teeth appear clean if one doesn't look too closely, and they disclaim the use of dental floss by accusing it of pulling out the fillings that usually decay loose, because the dental floss is not carefully used each day. A large proportion of the physicians whose mouths I have examined do not know how to cleanse their teeth, and they also carry in their mouths non-removable, non-cleansable bridges, that are wholesale spreaders of systemic infection. If such ignorance exists among these cultivated intelligent patients, what can we expect of those children whose parents never use a toothbrush effectively, if they use it at all? When we can teach a fencer to fence by a correspondence course, when we can make a good swimmer of one who has never swum by merely describing the strokes, then we may hope to teach the children effective tooth brushing and dental flossing by diagrams and general class drill.

Up to the present time the task is too great for the number of workers in this field, self-sacrificing and enthusiastic as they are. If the campaign for mouth hygiene is really to succeed in stopping the general decay of the teeth with its secondary toll of deadly systemic disorders, we must have more enthusiastic educated assistance from the medical profession as a whole. The physicians as a whole not only ought to be able to say to their patients "cleanse your teeth"; they must as a class be able effectively to cleanse their own mouths. With this knowledge at their disposal they can intelligently recognize a dirty mouth when they see it, and then by their enthusiastic advice and demonstration they can instill similar

enthusiasm into the mothers and fathers of families under their care. The physician alone has sufficient authority to create such necessary enthusiasm, and until his whole-hearted intelligent cooperation is obtained, the really fine organization for combating mouth infection and tooth decay that now is being perfected in this country will be like a beautiful electric engine that has everything but the power necessary to make it run.

So much for the dental science with which the title of this paper deals. We will now proceed to discuss the dental propaganda.

The country is at present being exploited by certain manufacturers of dentifrices and mouth washes to the sum of millions of dollars where extravagant pseudo-scientific claims are made of a therapeutic nature that lull the deceived buyers into a sense of false security. The complacent public is justly informed that the cause of tooth decay is bacterial film on the teeth, but the pseudo claim is that such and such and such a dentifrice or mouth wash will dissolve the film between the teeth by the mere act of rinsing the mouth with the mouth wash or of placing a small portion of the tooth paste on a toothbrush so that it can be rubbed in between the teeth. If such a mouth wash or tooth paste really existed it would surely be worth four times what they charge for it. But the most casual observations as well as the most thorough scientific tests show that these preparations do not dissolve the bacterial film and that the claims are absolutely without foundation. Extracted teeth immersed at mouth temperature in these miraculous mouth preparations for an hour still are covered by their original mucilaginous bacterial film and the same disheartening results are obtained when the wash is held in the mouth for from two to three minutes. The same with the bacteria-dissolving tooth pastes. The toothbrush cannot cleanse the interdental spaces, the dental floss alone can do that, and tests in the mouth and in vitro show that the dentifrices do not have the power to dissolve the bacterial masses and so remove the source of the disease. But these dentifrices have one property that is not dwelt upon in their advertisements. These dentifrices may contain chalk or other substances which cut deep grooves into the necks of the teeth wherever these dentifrices are used consistently and plentifully for any length of time. The rea-

son more teeth are not injured by the grit is because the tooth brushing is ordinarily so casually performed.

Miller\* as far back as 1907 pointed out the erosive action on the teeth of grits in dentifrices, and later experiments† have confirmed his findings and have proved that powdered chalk and precipitated chalk when continuously used for tooth cleansing will wear away both enamel and dentine.

Of course tooth cutting grits are therapeutically unnecessary. This dentifrice and mouth wash exploitation is only less pitiful and harmful than the exploitation of those nostrums for the cure of cancer. In each instance the purchaser is lulled into a sense of false security until the disease has made irremediable headway. The cancer, if removed from the tissues at its first appearance, can be eradicated; if left undisturbed it soon cannot be cured. The same with the teeth. If the bacteria were only mechanically removed each day before they could form enough acid to cut the enamel, or before they could invade the gums, tooth decay and gum disease, as a scourge, would disappear. Clean gums and clean teeth cannot decay, and a thin film of bacteria cannot grow within twenty-four hours in sufficient quantity, to form enough acid to attack the teeth or to form sufficient toxins to break down the bacterial resistance of the gums.

Of course most manufacturers of these mouth preparations are desirous of being honest and of real service. They may not know that chalk cuts the teeth or even that the antiseptics in these mouth washes or tooth pastes can have no dissolving effect on the mucilaginous bacterial mass. There is for instance one tooth paste made up of magnesium hydrate. This has a mild bleaching effect on the superficial stains on the teeth and is antacid, and certainly cannot injure the enamel or dentine since it is entirely free from grit.

In conclusion I shall sum up with emphasizing the following points:

The cure for decayed teeth and infected gums is mechanical cleansing which must be obtained through the scientific use of the dental floss and small toothbrush. The methods by which this daily cleansing is obtained are

most uninteresting, frequently painful and difficult to learn.

The general mass of physicians not being trained dentally cannot teach nor instruct the parents and without their cooperation the interest or understanding cooperation of the parents is impossible.

Peroxid of hydrogen, salt water or boric acid make excellent mouth washes that are valuable when used for a period of two minutes after the mouth has been mechanically cleansed. And finally, the public should be told that no mouth wash or tooth paste that claims to make mechanical cleansing unnecessary should be used unless it has had its claim passed upon by a competent therapeutic jury. And if such a jury is not now possible, the bewildered public should some time in the far future have the services of a competent body of physicians who will speak with unbiased scientific knowledge of the preparations they are prescribing, a body who will not have to gain their sole knowledge from the propaganda circulars of those manufacturers whose principal interest lies in increasing the sales of their products.

*235 South Fifteenth Street.*

## THE MEDICAL PROFESSION AND THE MEDICAL PRESS.\*

By FRANCIS E. STEWART, M. D., Phar. D., F. A. C. P.,  
Philadelphia, Pa.

I have the honor to address you as a member of the American Medical Editors' Association and Chairman of its Committee on Pharmacology and Therapeutics.

This Association was organized in 1869. Its first president was Dr. Nathan S. Davis, "Father of the American Medical Association". It has had a long and useful career under the presidency of leaders in medical science and practice whose names are familiar to you all. However, at the death of its last president, Dr. Henry O. Marcy, of Boston, an ex-president of the American Medical Association, and a distinguished member of the faculty of Harvard University Medical School, the Association became inactive because of the demands of the great World War upon its efficient secretary and many of its most active members.

Early in January, 1928, the American Medical Editors' Association was reorganized. H.

\*Miller: *Dental Cosmos*, Volume XLIX, page 246.

†Head: *Modern Dentistry*, pp. 62 and 63.

\*Read by invitation before the Seaboard Medical Association of the Carolinas and Virginia, December, 1928.



Lyons Hunt, M. D., L. R. C. S., Edin., one of its old and active members, called a meeting of a few of the New York editors to discuss the advisability of its revival to life. The vote of those present was unanimous that it should be done.

Practically all the old members returned to the fold and more than two hundred more rallied to the flag; consequently, we have over three hundred members, not counting the members of the Medical Authors' branch which has recently been formed as part of the American Medical Editors' Association. The Association today represents practically every medical and pharmaceutical journal in America. Besides that, we have as over-seas members, the editors of the leading British medical journals, several of the French and nearly all of the Canadian.

Committees were appointed to study ways and means for solving many important problems relating to the medical profession in its relations to the public, as well as those pertaining more exclusively to medical and pharmaceutical journalism. These committees will report to the Association at its next annual meeting. Just how the Association will stand on these subjects will largely depend upon the information gleaned by the special committee appointed to study them.

The special subject for study delegated to the Committee on Pharmacology and Therapeutics relates to the question of cooperation between the educational and industrial institutions related to the *materia medica* and *materia medica* supply business, namely, the editors of medical and pharmaceutical journals depending for income to a greater or less degree upon advertising manufacturing houses engaged in the production and commercial introduction of alleged new remedies; authors of textbooks on *materia medica*, pharmacy, and pharmacotherapy; lecturers and instructors on these subjects connected with the medical and pharmaceutical schools and colleges, publishing houses responsible for the publication of journals, pharmacopoeias and text books—all are responsible to the public for the service they are rendering—all are in partnership in rendering it. Attempts to dodge this responsibility are futile.

The President of the American Medical Editors' Association in a letter to me, made the following statements: "The American

Medical Editors' Association should establish a laboratory, either through a corporation or stock company, the stock to be sold to physicians throughout the country, or else be the basis of a request for a foundation or an endowment so that this laboratory will be thoroughly able to function properly. The various pharmaceutical houses could, with advantage to themselves, subsidize this laboratory by yearly contributions. The laboratory would in no way be under the influence, the dominance or the dictation of special pharmaceutical houses, because in subsidizing this laboratory, they would be able to save many times the amount they could afford to give, by eliminating many of their own technicians and cutting down their own laboratory expenses, since this laboratory would be giving them an unbiased report on products they were thinking of manufacturing".

The President further stated that there could be no logical objection from any quarter to such a laboratory as such an institution would be solely for the purpose of supplying the manufacturer with data relating to a proposed product, so that the manufacturer would be in a position to either save money by either not manufacturing his product, where he found the data entirely against it, or should the data be in its favor, he would be in a better position to present his product to the Council of the A. M. A., as the data collected would be free from any commercial influence.

Now in regard to the character of the matter published in the reading and advertising pages of the medical and pharmaceutical journals, its object is for the most part to teach; and editors, publishers, and subscribers are equally responsible for what is being taught in either classes of pages. In fact, if possible, all are more responsible for what goes into the advertising pages than they are for what goes into the reading pages. I base this assertion on the fact that what goes into the reading pages is open to discussion. Not so what goes into the advertising pages. The publisher who permits the impartial discussion of the therapeutic merits of an alleged new remedy advertised in his journal runs the risk of a lawsuit for damages if he allows anything to appear in the reading pages that may injure the sale of the advertised product. The author of this paper can attest the fact from personal experience as an editor.

The President of the American Editors' Association also wrote me as follows: "If you wish to add anything to your paper regarding my personal opinion, you may include just what I have stated and you may also add that in the organization of your committee, I made only one request, that is, if a preparation were efficient, it was to be passed on favorably, regardless of the method of manufacture or who the manufacturer might be. This may come in conflict with our ethics which were established before the days of advertising, but my belief is that these ethics of three centuries ago are not applicable in this twentieth century."

The unsatisfactory state of affairs regarding the advertised remedies is set forth in the following "Preamble and Resolutions Adopted by the American Therapeutic Society, May 1, 1922.":

WHEREAS, the exact therapeutic value of new and even old drugs cannot be demonstrated owing to (1) the variety of names under which they are marketed; (2) the variation in their character, quality and strength due to different processes of manufacture; (3) the opprobrium of publishing in medical journals laudatory articles advertising commercially controlled drugs; (4) the fact that medical journals are unwilling to publish articles repudiating the therapeutic value of drugs, the advertisements of which are carried by them in their advertising columns.

WHEREAS, the large majority of practitioners of medicine and surgery find it impossible to remember or to take time to write long chemical names of drugs which have short, easily remembered names claimed as trademarks by their manufacturers.

WHEREAS, the constant use of a commercial name by physicians in prescribing and pharmacists in ordering supplies creates unfair monopolies in the sale of such drugs, to the discouragement of other manufacturers of the same products under their chemical names and hence, by destroying competition, removes the incentive to excel in the production of preparations of superior quality, therefore be it

1. RESOLVED, that the American Therapeutic Society herewith records its complete disapproval of all methods now in vogue for obtaining monopolies in drugs, vaccines and serums by product patents and the registration of so-called commercial names as trademarks; be it also

2. RESOLVED, that the American Therapeutic Society herewith records its approval of, and that it will support, measures that aim toward the patenting of processes and apparatus for the manufacture of medicinal drugs, chemicals and preparations of the same when such products are in fact new and useful inventions, provided that a complete description of their chemical composition, method of preparation and standardization and tests for purity are made known in the application for patent in such clear and concise language that any chemical or pharmaceutical firm may manufacture and market said drugs; and

3. RESOLVED, that the American Therapeutic Society approves the patenting of new drugs under agreement whereby educational, research and ele-

mosynary institutions are licensed by the patentees or their agents or assigns to produce such patented products without royalty; and be it

4. RESOLVED, that the American Therapeutic Society also approves measures whereby the owners of such patents shall license the production of such patented products to competing manufacturers on a royalty basis; and

5. RESOLVED, that the American Therapeutic Society urges the cooperation of the medical profession, pharmacists, pharmaceutical firms, manufacturers of drugs, and editors of medical and pharmaceutical journals toward the end of appointing committees with power to promote such legislation as is needed to abolish the obnoxious and unscientific production, marketing and medicinal use of drugs, patented under the present laws; be it also

6. RESOLVED, that a copy of these resolutions be sent to the secretary of each national medical pharmaceutical association and to the journal of the American Medical Association.

This "Preamble and Resolutions" met with no response from the advertisers of alleged new remedies with one exception. You will note that the several solutions suggested by the American Therapeutic Society were based upon the abolishment of the product patent. What is meant by the product patent?

In most foreign countries, medicines are excluded from patent protection. However, in most such countries patents are allowed for processes and machinery for manufacture. In the United States patents are granted for foods, medicines, and chemical substances also for the processes and machinery for their production, thus creating monopolies for the products themselves. These monopolies are usually under the control of business men who are not in harmony with the professional ideal of the medical fraternity.

The educational and industrial institutions related to the *materia medica* and *materia medica* supply business cannot work in harmony under a system of monopoly of products. Progress in the science of *materia medica*, or, in other words, the science of pharmacology, and in the useful arts of pharmaceutical chemistry, is dependent upon co-operate and co-ordinate research work on the part of the practitioners of these arts. There can be no co-operation under a system in which one party appropriates the results to the exclusion of the other. As things now exist, the knowledge resulting from the researches of men of science is immediately appropriated by the men of commerce for money making purposes to the exclusion of the men of science oftentimes without giving the research worker credit. For example, if a physician reports favorable



results in the therapeutic use of a monopolized therapeutic agent, the monopolist immediately reprints the report and uses it for advertising purposes. Or, again, if a medical or pharmaceutical practitioner discovers an improved process of manufacture, or a new product, it is appropriated without credit. The only way in which he can protect himself from such unfair competition is to patent the results of his researches. But the patenting of medical and surgical products is forbidden by the code of medical ethics. It is also forbidden for a physician to publish a report attesting to the therapeutic value of a monopolized product. The penalty for such a breach of ethics, is, in at least one State, automatic severance of relations with the county medical society.

As above stated, the sending out of its preamble and resolutions by the American Therapeutic Society met with no response with one exception. Mr. Milton Campbell, President of the H. K. Mulford Company, representing the board of directors, offered to license the production of products worked up in the Mulford laboratories to all competing houses in response to the extension of the same privilege by competitors to the Mulford house and other competitors. This plan, in modified form, was adopted a year later by the University of Toronto for the introduction of insulin to science and brands of the same to commerce. Further modifications of the license plan are in vogue, whereby, as in case of insulin, the censorship of therapeutic claims is under the control of disinterested committees.

In relation to alleged new remedies what is urgently needed by all concerned, physicians, pharmacists, producers and the public at large, is some method whereby their therapeutic merits can be determined before they are placed on the market for sale.

*The Council on Pharmacy and Chemistry of the American Medical Association does not enter either field. Not until the producer has gone to the expense of getting the product in packages ready for retail sale or dispensing, including printed matter, does the Council deal with it.* Then it assures itself that the producer has obeyed the rules of the Council—rules that are excellent and should be obeyed. But the field of the Council does not enter the field of therapeutics. As stated by its learned and efficient secretary, the Council cannot enter this field in regard to products advertised

in the *Journal of the A. M. A.* without going into partnership with its advertisers and losing its judicial position.

#### ADVANTAGES OF THE VOLUNTEER LICENSE PLAN

The great advantage of the volunteer license plan is that it does away with monopoly, and, at the same time, protects legitimate professional and commercial interests and places the introduction of new materia medica products on a co-operative basis. The burden of expense is shared between the educational and industrial institutions; the artificial demand created by advocates of alleged new remedies is corrected by impartial discussions in medical societies and medical press. Brands are advertised in the advertising pages of the medical journals without endangering the integrity of the reading pages, and the more brands advertised the less the danger. These advantages may be summed up as follows:

1. It stimulates materia medica research and the publication of the results by donations to the professional societies and professional press, and thus increases the value of both as educational institutions.

2. The increased value of the medical journals as media for conveying knowledge concerning new products increases their circulation, and this, in turn, increases their value to the manufacturers of brands of the same as advertising media.

3. It stimulates competition between the manufacturers of brands to excel in quality of product. The license system insures common standards, yet quality of products made in accordance with common standards differs on account of differences in the skill of the producer.

4. The temptation to decry the merits of new products because of commercial rivalry is removed and desire to promote the investigation and use of such products is substituted for it because of the realizing sense that the introduction of each new product of therapeutic merit is profitable to all, as all are equally concerned.

5. It lifts the embargo on the medical press imposed by the monopoly system and permits the medical journals to impartially discuss the therapeutic claims for new products in their reading columns without fear of losing advertising patronage. For example, the advertising of brands of diphthera antitoxin in the

advertising columns of the medical journals has not hindered the impartial discussion of the therapeutic value of diphtheria antitoxin in the reading columns.

6. It permits medical scientists to enter the employ of the industrial institutions engaged in the pharmacal and pharmaco-chemical industries to do research work for monetary reward as well as scientific credit, thus encouraging them to choose research work as a vocation. Under the prevailing competitive system research work in commercial laboratories is discouraged.

7. It permits the medical and pharmaceutical schools and colleges to throw open their laboratories to research workers for solving problems of both scientific and commercial importance for the industrial institutions without danger of charges of collusion.

8. It places the faculties of the medical and pharmaceutical schools and colleges in position to teach their students knowledge relating to the more recent additions to the materia medica without the danger of unwittingly teaching errors due to commercial exploitation.

9. It creates a demand for departments in educational institutions for the teaching of pharmacologic science and the arts upon which that science is dependent to meet the requirements of the era of therapeutic renaissance now before us.

10. It creates a new and most promising field of work for the graduates of such institutions in the employ of industrial institutions carrying on their vocation in co-operation and co-ordination with the medical and pharmaceutical schools and colleges.

11. It places the pharmacal and pharmaco-chemical industries on a professional basis of such character that capital invested in research work may receive the protection afforded by the correct application of the patent and trademark laws without violating the ethical principles upon which the practice of medicine is founded.

12. And, finally, the plan is based upon sound business principles, is practical, is protective alike to educational and industrial institutions, protective to the medical and pharmaceutical press and its advertising patronage, and protective to the public health and general welfare.

## THE CONTROL OF CANCER.\*

By W. C. CAUDILL, M. D., Pearisburg, Va.

When one considers the intensive scientific study that has been given to the subject of cancer during the past few years, the rapid and almost universal crystallization of the most effective methods of treatment, with regard to surgery, the X-ray and radium, the enormous amount of educational work that has been done among the laity, and at the same time notes that the death rate from cancer slowly continues to rise, he is at once made to realize that there is yet much to be done in this field.

It is true that by modern refinements of technique and improved methods of diagnosis, more cases of obscure cancer are now being brought to light than formerly. Yet, despite this fact, the consensus of opinion is that the death rate from cancer is on the increase. We do know that more than one hundred thousand lives are being taken annually in the United States by this dreadful disease.

The lack of knowledge of the real etiology of cancer and the absence of any universally effective cure naturally makes the control of cancer a most difficult problem. Certainly at this time no campaign comparable in results with that of typhoid, diphtheria and tuberculosis can be hoped for.

Yet, regardless of this fact, we know enough of the true nature of cancer, we have a sufficient means of diagnosis, and the present methods of treatment are quite adequate to lower definitely and materially the death rate of cancer if only the knowledge we have is made use of in the wisest manner and to the fullest extent.

The American Society for the Control of Cancer has undertaken the Herculean task of "leading a movement to reduce the amount of suffering and death from cancer in the United States and Canada". A wonderful ideal indeed. To accomplish this aim, the Society is working with two main objects in view:

1. "To teach the public the earliest danger signals of cancer, which can be recognized by persons without especial knowledge of the subject, and to induce the laity to seek competent medical attention when any of these indications are believed to be present."

2. The physician or surgeon when consulted



must make a prompt and accurate diagnosis, and institute immediate treatment.

If the campaign against cancer is to be crowned with results, it must, like any successful political campaign, be obtained through a wise, extensive and complete organization. The society has effected such an organization and already millions of people have been taught how to recognize the early signs of cancer, and the danger of delay in applying for treatment. On the other hand, there are many sections throughout the country into which the campaign has not yet been carried, where reside thousands of people who are still in total ignorance and darkness in so far as knowing what could be accomplished by the early recognition and treatment of cancer. To these people the gospel of light and hope is yet to be carried.

About two years ago I was called to see a patient in one of the more isolated sections of my county who was suffering from an inoperable cancer of the breast which had already metastasized to the liver and lung. When asked why she had not sought the advice of a physician earlier, she replied that she thought it was only a "waxen kernel" that had come as the result of a mosquito bite. Another patient who was examined in the office was found to be suffering from a well-advanced case of carcinoma of the cervix. She returned home to make preparations to enter the hospital at once. Several of her neighbors upon learning that she had cancer advised her to have nothing further done whatever; it would be no use if she had cancer. She returned, however, in spite of their protest, and is now apparently cured. I recite these two cases to emphasize the importance of extending the educational campaign into every city, town, county and hamlet throughout the entire country.

The efforts of the Society thus far have not been fruitless. The Pennsylvania Cancer Commission reports that "thirteen years of education have cut down the average time between the discovery of the first symptoms in superficial cancer and the first call on the doctor from eighteen months to fourteen and six-tenths months, or 20 per cent. In cases of deep-seated cancer the interval has been reduced nearly one-half. And in these thirteen years, the doctors of Pennsylvania have learned the importance of prompt action sufficiently

to have reduced the interval between the patient's first appearance and the institution of the treatment required from thirteen months to four and one-half months, or 65 per cent, in superficial cancer, and from twelve months to three and nine-tenths months, or about 70 per cent, in deep-seated cancer". The results noted in Pennsylvania can be obtained in every state in the nation if the campaign is prosecuted with the same vigor and determination.

The vital importance of educating the public cannot be over-estimated; but it is upon the shoulders of the physicians themselves that rests the greatest responsibility of all. About 10 per cent of the doctors of the country must face the serious charge of not instituting early treatment even after the patient has applied. It is hard to believe that any doctor who has graduated from a recognized medical school and passed the State Board examination would advise a woman with breast cancer to "wait until it begins to bleed and then come back and I will tell you what to do", or a woman bleeding from a cancerous uterus that she "had a cold in the pelvis", and another case of cancer of the rectum "that his bleeding was from a rupture", and a truss was prescribed.

We must admit, even with all our modern methods of diagnosis, that many of the internal cancers are most difficult to recognize in time for early treatment; but there are present in almost every case symptoms that would give rise to a suspicion of cancer, and we should not hesitate to refer these cases to those best qualified for making a diagnosis. It is well always to bear in mind that cancer of the stomach and liver is the most important form among men, that nearly one-half of the total cancer mortality among males is of these organs, and that one-half of the total cancer mortality among women is of the breast and genital organs. Every physician should be thoroughly familiar with the earliest symptoms of cancer of the stomach, and always be on the alert to suspect its presence. We must ever remember "that if cancer is to be treated successfully it must be treated early".

My appeal to the medical profession is to get behind the movement for the control of cancer with its most earnest and whole-hearted support and cooperation, with the confident hope in view that, when this is done in deed

and in truth, suffering and death from cancer will be greatly reduced.

## THE PRESENT STATUS OF THE DIAGNOSIS AND TREATMENT OF DEAFNESS.\*

By M. L. BREITSTEIN, M. D., Baltimore, Md.

In a consideration of the present status of the diagnosis and treatment of deafness, we may say with pardonable pride that in no time in the history of otology has there been such a widespread scientific approach to the investigation of deafness as now exists. This happy condition is due largely to the efforts of the American Otological Society and to the hearty cooperation of our large Foundations, as well as to the interest of the government through the Department of Education.

I am sure it is not necessary to emphasize the seriousness of this problem. I need only to call your attention to the fact that recent investigations among public school children tend to show that at least 14.4 per cent of the school population are suffering from defective hearing. Translated into numbers this means over three million school children in the United States.

As a hearing mechanism, the ear may be divided into the sound conduction apparatus and the sound perceiving apparatus. The external and middle ear serve as the conducting mechanism while the internal ear, that is, the cochlea and the auditory nerve endings, are the sound perceiving mechanism. Accordingly, the localization of the lesion determines whether there is a conduction deafness or a perception deafness. Indeed, conduction lesions are called middle ear deafness and perception lesions internal ear deafness. Without going into too great detail concerning the differential diagnosis of deafness, it may be said that the typical conduction apparatus impairment usually shows the following: diminution in hearing for low tones, lengthened bone conduction, and a negative Rinne (that is, bone conduction is better than air conduction, which is just the reverse of the normal finding.) In perception deafness we are more likely to find shortened bone conduction, reduced hearing for the high tones, and a positive Rinne.

You are all familiar with common forms of otitis externa, as well as the catarrhal and purulent affections of the middle ear associated with nose and throat disorders and also with the infectious diseases of childhood. It may not be out of place to remind you that it was as recent as 1870 that Wilhelm Meyer, of Copenhagen, published the first work on the effect of the removal of adenoid growths in the nasopharynx as a factor in reducing serious impairment in hearing. At the time of his writing it was estimated that cases of serious deafness in the young were reduced about 60 per cent over former years. Recently, there has been much important emphasis on the relation of nose and throat pathology and ear disease. Happily, the time is already here when the physician regards with proper seriousness repeated earaches and persistent ear discharge.

Aside from the essential nerve deafness such as that which complicates meningitis, syphilis, parotitis—there is another form of internal ear disease which has its beginning and is always confined to the bone surrounding the end organ of the auditory nerve. It is the belief of many that these bone conditions, somewhat analogous to osteoporosis, develop from constitutional causes as yet obscure. Otosclerosis is the commonly accepted term for this condition. We do know that it is hereditary, that it affects women more often than men, that it usually becomes clinically manifest in early adult life, and that it is aggravated by pregnancy. In addition, there are undoubtedly cases in which the disease has its beginning in the middle ear but in association with which there is to be found involvement, either resultant or concomitant, of the internal ear.

There was a time, and that in the not distant past, when otologists serenely assumed a fixed correlation between the tuning fork tests and ear pathology. As recently as 1923, there was published an elaborate chart into which chronic catarrhal otitis media, chronic purulent otitis media, otosclerosis, otosclerosis with nerve deafness, peripheral nerve deafness, and central nerve deafness were differentiated and snugly fitted in accordance with the tuning fork tests. At the present time we are not quite so certain about the interpretation of hearing tests; for strange things are being reported. For instance, shortening of bone conduction has always been regarded as evidence

\*Presented at the fifth annual meeting of the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., October 2, 1928.



of nerve deafness and yet one author has observed that shortened bone conduction may exist for years and after treatment, in some cases, be partially restored. It was also observed that the conduction apparatus may be impaired by the loss of the drum, malleus and incus and epidermization of the promontory—and yet the hearing may be but little impaired. In a very careful and exhaustive study of the tonal ranges in lesions of the middle ear, an analysis of the clinical charts of twenty-two cases of acute otitis media showed that in every case except one, there was either decreased bone conduction, lowering of the upper tone limit by bone conduction, or a defect in the audiometer curve which was suggestive of a nerve lesion. There was no definite relation between the severity of the middle ear infection and the nerve lesion for—and this is of particular interest—when the middle ear infection was unilateral usually the unaffected ear also presented evidence of a nerve lesion. In every case of chronic otorrhea except one there was evidence of a nerve involvement; and contrary to the acute infections, there was an interdependence of the middle ear lesion and that of the nerve. These and other reports from reliable observers have complicated the interpretation of hearing tests.

Unfortunately, hearing tests must necessarily deal with the subjective element and consequently due allowance must be made for this fact. Tuning forks have been the most reliable method of qualitative testing. However, with the tuning fork there has always been the question of standardization. Dr. A's tuning fork test did not necessarily agree with the test of Dr. B. For many years there was a standing committee in the American Otological Society on the standardization of the tuning fork test. Various and sundry methods were advocated but there was always some difficulty which was not overcome. Quantitative testing with tuning forks was also attempted. Perhaps one of the best methods advanced was that of comparing the patient's hearing with that of the examiner—with the assumption that the examiner's ears were normal. By this method it was hoped that we could approach the ophthalmologists x/20 vision test with an x/20 hearing test. I need not enter into the physical pitfalls of such a procedure. So the problem of the standardization of hearing tests and the problem of a

really worth while quantitative test remained. In addition there was another problem of vital importance—namely, the detection of slight loss of hearing.

About 1915 an otologist and a physicist—an extremely appropriate combination—got together on these problems. After much labor they perfected the Iowa pitch range audiometer—an instrument by which the tuning fork tones were electrically produced and the intensity of the tones exactly controlled by electricity. The instrument was not ideal—but the fundamental method of solving the problems had been discovered. While these men were working upon the perfection of their instrument, along came the Bell Telephone and the Western Electric Companies with an audiometer developed in their laboratories—and it is a real solution of the hearing test problem. With this instrument, tones from 32 to 32,000 double vibrations per second are produced and the intensity is electrically controlled. From the tests of a large number of people they have established a norm—so that it is possible to chart a hearing curve and also to calculate the percentage of hearing loss.

The pathology of external and middle ear disease is rather well understood. When, however, we come to the pathology of the internal ear we are breaking new ground. I do not mean that work has not been done. On the contrary, continental laboratories, particularly the Viennese, have published a great amount of work. However, there has not been a satisfactory correlation between the clinical findings and the pathology. In fact, the very pathological findings themselves are still in a stage of questionable interpretation. When we consider the difficulties in obtaining temporal bones without incurring the danger of post-mortem change, the difficulty of removing the specimen without injury to the delicate internal structure, and the many difficulties in preparing the specimen—the proper decalcification of which alone takes about two months—for microscopical examination, perhaps we will not be too severe in our criticism. The chief problem of the ear pathologist at present is the obtaining of a sufficient number of serial sections of normal internal ears—sections which are above any suspicion of artefact and which are suitable for study under the highest power lens. When this has been done, then and only then can we speak

with any authority about pathological findings. In order to accomplish this, and also to insure some correlation with clinical data, ear laboratories have been established at several centers. As many temporal bones as possible are being sectioned. Along with this the complete clinical history and examination, including a complete hearing test, is filed. You will agree that this is a stupendous program, and surely many years will be required before real results are obtained.

We come now to the treatment of deafness. Fortunately, much can be done with many cases if they are seen early enough. On the other hand, there are too many cases of deafness which distressingly remind us that our progress has not been sufficient. With your permission I shall now digress from the subject of this paper to dwell somewhat upon the responsibility of the physician to these deafened individuals.

The conscientious physician recognizes the limitations of medicine in the treatment of these cases, and we very properly praise his honesty in dealing with his patient. However, it is at just this point that too many physicians feel that they have discharged their entire responsibility to the patient. It is perfectly possible for a competent otologist, after a proper examination, to determine whether the deafness is curable or not. It is also possible to prognosticate fairly well whether the deafness is of a progressive nature. Having made the proper examination and having determined that the deafness cannot be helped, can we conscientiously feel that we have done our duty as physician to the patient by saying, "I am sorry, but there is no cure for your deafness?" Can we complacently wait until medical science discovers a cure? Perhaps in no other field has quackery had a wider fling, and I suspect it is very largely due to the *laissez faire* attitude of physicians who, in too many instances, discharge their responsibility by pronouncing the deafness incurable.

What, then, is to be done with these incurable cases or with those cases in which we feel that the deafness is progressive? The proper guidance at the proper time may very well mean all the difference between an ultimately useful member of society and a most difficult social and economic problem. To give false hope of cure, to equivocate for a long period of time, is nothing short of criminal. We all

know that psychologically there is no class of individuals who are more susceptible to suggestion than is the deafened. This weakness is too frequently played upon to the ultimate injury of both the patient and the doctor.

There are two means of attack. The first is the early recognition of progressive deafness and the immediate treatment of it as such. The second is the realization that we have to look for help beyond the armamentarium of medical treatment to the realm of education. We are considering now the deafened—that is, those individuals who have once had the hearing faculty, in contra-distinction to the deaf who have never had the faculty of hearing or who have lost it at such an early stage that they have not become acquainted with the spoken voice.

First, then, as to the early recognition. If progress is to be made in the prevention of the commonest types of deafness, the problem must be attacked at an earlier stage than has as yet been recognized. It soon becomes apparent that in order to accomplish anything in the early detection of deafness, we must enter into the sphere of public health. The routine examination of hearing in school children suggests itself as a possible and effective check.

Slight degrees of deafness in children, and in adults as well, cause much less disability than slightly defective vision, and for this reason it is more easily overlooked. Up until very recently the progress in rendering proper medical and educational treatment has been hampered because of the inadequate means of detecting slight hearing defects. As I have told you, this has now been overcome. By means of the recently developed 4-A or phonoaudiometer, standardized voice tests can be given to forty children at one time at the rate of 100 to 150 in one hour. This is an instrument by which the sounds from a phonograph record are transmitted electrically to adjustable ear phones. In this way one can check up on those children who fail in the whisper test. Those who have failed in this test are then tested individually, preferably with the 2-A audiometer, and those showing a hearing loss of 25 to 30 per cent are referred to the health department for special medical examination. This presents a rough outline of the method of attack from which I believe the greatest success can be obtained in the early



recognition of deafness. To be sure there are many difficulties. There is the difficulty in persuading the parent to allow the child to be brought to the clinic for treatment. There is the additional difficulty of impressing upon the parents the need of treatment when apparently the defect is so slight. However, while it may not be possible at present to discover every child who is in need of either medical or educational treatment, at least some such program would probably insure effective strides in that direction.

We come now to the second step. Having found that a certain number of the children who have had special medical examinations are incurably deaf or that the deafness is of a progressive nature, what is to be done? The problem now becomes entirely educational. The interesting thing about the educational movement, interesting and at the same time a rather sad commentary, is the fact that the movement was not started by physicians, but by the deafened people themselves. It is the general consensus of opinion that, for the deafened, education in lip reading offers the best hope. Lip reading is a comparatively new study. It was not until 1900 that it was brought to this country from Germany. However, from three private schools originally founded in Boston, New York and Philadelphia, this form of education has spread, so that teachers are to be found in most large cities. In Germany the need of this particular form of education was recognized in 1902 and instruction was given in all schools. In Austria, Holland and Switzerland lip reading has been long established as a recognized treatment of the incurably deafened. In Vienna the teaching of lip reading is combined with the vocational training, so that by the time the child graduates from school he is a useful citizen and is thoroughly at home in the normal hearing world.

The progress in the United States in the past few years has been very encouraging. In practically all the large cities in this country classes are being constructed for the deafened child. In these classes instruction is given by a visiting teacher for two half-hour periods a week. It is important that the child be kept in a normal atmosphere, and that he be allowed to progress as fast as he can with his normal brothers and sisters. Segregation should be avoided, and the aim should be the

restoration of these children to society as quickly as possible. The psychology should be that of making the child feel that he is getting special help in his education rather than to let him suspect that he is segregated because of his deafness. In modern education this sort of procedure should be perfectly possible. Not more than five children should be taught in one class for a period of not more than half an hour twice a week. The work constitutes the training of the eye in quickness and accuracy, and also training the mind to concentrate in detecting the movements of the lips in speech and translating them into thought. This is done through drill words, sentences, stories and various devices. It is evident that the teachers who handle these classes must be especially trained for this type of work and in addition should have the normal or regular college training required by the school department. At present there are two universities, Boston University and Johns Hopkins, in which there are courses for training teachers to conduct the lip reading classes. There should be more of these courses available.

I have given this brief summary of what has been done and the direction in which I believe the movement must go if we are to expect results. There must be a close alliance between the health and the educational authorities. As physicians, we must change our attitude of hopelessness towards the deafened who cannot be helped by medical treatment. We must be particularly careful in our diagnosis, to be sure, but, above all, we must realize that the rendering of a diagnosis alone does not constitute the whole responsibility of the physician to his patient.

#### DOUBLE ECTOPIC PREGNANCY.\*

By H. H. HARRIS, M. D., Anderson, S. C.

L. P., colored, age thirty-three, married at fourteen years old, but did not begin having children until twenty years of age. She had three children about two years apart, and all births were normal with the exception of the last one, which was a prolonged labor. She had a slight septicæmia and was in bed three weeks. Then she began having miscarriages which averaged about five and one half months. She had seven in all over a period of six years.

\*Presented at the fifth annual meeting of the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., October 2, 1928.

In February, 1928, after missing three menstrual periods, she was seized with acute abdominal pain, fainting spells, and some wasting from cervix. After three days illness her physician called in another physician who did a D and C operation on her. He found but very little material in her uterus, so he packed with gauze and mercurochrome to stop her bleeding. She had a typical septicemia following all of this and was sick three months in bed. She ran a temperature for six weeks. Ever since this attack she has had much pain in right lower side of abdomen, worse at her menses, and would often faint on first day of her menses.

On July 4, 1928, she was brought in to the A. C. Hospital, having been sick ten days with acute pain in abdomen and many fainting spells. She was in a light shock, temperature 101, respiration 24, pulse 110. Her blood count was 14,000 whites and 80 polys. She had missed two menstrual periods.

Vaginal examination showed uterus enlarged and soft, with mass in right side and no discharge from cervix.

Operation: Diagnosis made:—probable pus tubes.

Lower median incision was made in abdomen. Free blood was found with many dark clots. Her left tube showed a recent rupture of a fetus about eight weeks. This tube was removed.

Her right tube and ovary was one mass, resembling a pus tube with adhesions. This tube and ovary were removed in a mass. Drainage was done to pelvis by two tubes and abdomen was closed with catgut, silk worm gut, and linen. Patient made an uneventful recovery.

The mass that was removed was opened after the operation and was found to contain the bones, etc., of a fetus about three and one-half or four months.

I saw the patient September 28th and she was in perfect health. She was menstruating every twenty-eight days, and had gained twenty pounds in weight—back to what it was one year ago before all this trouble started—and had had no more fainting spells.

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We can't have an expansive stretch of healthy life without an expansive sweep of the mind. Little-ness of mind, jealousy, envy, the tendency to gossip, looking for the faults rather than the good traits in others, all have their adverse stultifying, dwarfing influences.—*Selected.*

## THE MEDICAL ASPECTS OF ABDOMINAL PAIN.\*

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Pain in the abdomen is probably the chief complaint of the majority of patients. When a person complains of abdominal pain all possible causes should be considered by the physician before treatment is begun. In some instances the cause is readily recognized as surgical and an operation is advised. There are many patients, however, in whom the cause is not readily determined. In these the symptoms and signs are confusing and require close observation and analysis before a diagnosis can be made. In a large proportion of patients in this class operative treatment will eventually be necessary, while, on the other hand, a number of patients will have some medical condition in which surgical procedures are contraindicated. The medical aspects of abdominal pain is, therefore, a subject of great importance and may be discussed with profit in a meeting of practitioners of medicine.

The greater number of abdominal cases are first seen by the medical man. It is he who first examines the patient and who decides whether a surgical consultation is needed. The medical man should strive to develop in himself to the highest possible degree that indescribable quality known as good surgical judgment; he should endeavor to make the same quick, accurate diagnosis that the surgeon makes. There are many cases in which the medical man's judgment is fallacious; he may recommend an operation without having considered all of the possibilities, or overlook an acute surgical emergency when delay in operating may result in a fatality that might otherwise be averted. He should endeavor to keep abreast of advances made in diagnosing not only abdominal lesions but also lesions elsewhere of which abdominal pain may be the first symptom. Witnessing operations and autopsies has proven invaluable in correcting many diagnostic errors.

It is not the purpose of this paper to discuss all of the causes of abdominal pain for they are legion, nor even those which are recognized as surgical at the outset, but rather to mention a few diagnostic pitfalls the medical man should bear in mind; also, a few

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\*Read at the meeting of the Staff of the Roanoke Hospital, January 3, 1929.



points which will often aid in arriving more quickly at a diagnosis.

The most frequent extra-abdominal lesions causing pain in the abdomen are those occurring in the chest, as cardiac lesions, pneumonia and pleurisy; those occurring in the spinal column, as hypertrophic spondylitis; diseases of the spinal cord, as tumors and neurosyphilis; affections of the sensory nerves supplying the thoracic wall, as herpes zoster and intercostal neuralgia. Intra-abdominal conditions as duodenal ulcer, colitis, hepatic carcinoma, lead poisoning, and intestinal parasites having pain as the objective symptom should be borne in mind, as the pain may signify some definite changes in the organs, pathologic or functional. It may also denote a changed relationship of the organs to adjacent organs, as in visceroptosis. In addition to these, it should be remembered that diabetic coma may be ushered in with abdominal pain, nausea and vomiting; and that abdominal pain may be the precursor of uremia. We must not overlook the fact that the predominating symptom of influenza occasionally is severe abdominal pain.

When the pain of coronary thrombosis is confined to the epigastrium, the close similarity of the symptoms with those of acute surgical lesions causes great difficulty in the differential diagnosis. The distinguishing features are a persistent pain of varying severity, not readily relieved by the nitrites or morphine, with associated changes in the heart sounds, a rapid fall in arterial tension and the development of pericardial friction. The diagnosis can only be made by a detailed consideration of the age, history, physical findings and close observation of the patient, particularly of the heart sounds and blood pressure readings. These observations are within the scope of every practitioner. The electrocardiograph renders valuable assistance in clarifying the diagnosis between this condition in which serious cardiac injury occurs and a surgical emergency demanding immediate intervention. It may render greater service in cases presenting symptoms of a milder degree than such as are usually ascribed to coronary thrombosis. The value of electrocardiography in suspected cases of coronary thrombosis is in demonstrating changes in the ventricular complex of the electrocardiogram occurring coincidentally with or soon after the onset of the symptoms.

The differential diagnosis between pneumonia and acute appendicitis is a matter of great importance. Confusion is likely to arise in those cases of pneumonia in the right lower lobe, which begins with pain in the right lower quadrant of the abdomen. A considerable amount of muscular rigidity may accompany the pain, and the possibility of pneumonia overlooked. When pneumonia is the cause of the pain the respiration rate will be increased and the temperature higher. A careful examination of the chest will often reveal restricted expansion in the right lung, with slightly impaired resonance over the lower lobe, diminished breath sounds, and possibly a few crepitant rales. Cough should be noted. A high leucocyte count favors pneumonia. X-ray of the chest should be made when possible.

Diaphragmatic pleurisy must be differentiated from acute surgical conditions in the abdomen, such as appendicitis, cholecystitis, peritonitis and sub-diaphragmatic inflammations. In diaphragmatic pleurisy, pain or tenderness in the neck or shoulder on the same side is often found. A painstaking physical examination may reveal a diminution in the intensity of the breath sounds, and the relief of pain afforded occasionally by strapping the chest is in contrast to increased pain on pressure over an acute appendix or gall-bladder. Even when the few signs indicate that the patient's lesion is thoracic, one may be in doubt as to whether there may not be appendicitis as well. Acute pleurisy, for instance, may result from an extension of the infection along the posterior abdominal wall. It is only by careful judgment that a decision may be reached.

Herpes zoster should always be borne in mind when unilateral pains without objective signs occur in the abdomen. Herpetic pains on the right side of the abdomen may not be confined to the upper or lower quadrant but may be referred in such a manner that renal colic is simulated. The diagnosis is made after the vesicles appear. When the eruption does not appear the diagnosis is almost impossible, though trophic disturbances may suggest herpes.

Intercostal neuralgia may be diagnosed by the presence of tender spots along the intercostal nerve, by the absence of symptoms and signs of organic disease in the abdomen, and by frequently finding a focus of infection.

Hypertrophic spondylitis causes pain which may be referred to the abdomen. Spondylitis is most commonly found in elderly people and is associated with the common symptoms of stiffness, painful body movements, lumbago and sciatica. The flexibility of the vertebral column will be found to be diminished, and X-ray or the vertebrae will show bony proliferation or absorption of the lime salts and narrowing of the intervertebral spaces.

Spinal cord tumors located in the lower thoracic segments and impinging upon the posterior roots may produce severe pain simulating local abdominal disease. The pain may persist for months, but the general symptoms of peritonitis are absent and sooner or later other signs of cord tumors develop, as paraesthesias, motor weakness, spasticity, and areas of anaesthesia and hyperaesthesia.

The gastric crises of tabes dorsalis may be attended by severe epigastric pain. Characteristic features of neurosyphilis are the sudden onset of pain of a few minutes' duration, and absence of the deep reflexes, Argyll-Robertson pupil, pains in the lower extremities, locomotor difficulties, and mental disturbances. Examination of the spinal fluid will show a positive Wassermann, a colloidal gold curve of the paretic or tabetic type, and increased globulin.

The classic duodenal ulcer syndrome includes a history of epigastric pain that has come to be known as a hunger pain. Pains due to chronic appendicitis and chronic cholecystitis may also be of this character, but the ulcer patient will more frequently show a higher percentage of free hydrochloric acid. Intervals of freedom from symptoms, or remissions, is characteristic of duodenal ulcer. The X-ray will prove the diagnosis in nearly all cases.

In visceroptosis a burning sensation in the epigastrium often occurs two or three hours after meals and is relieved by food. A carefully taken history will reveal other uncomfortable sensations, backache, fatigability, sometimes diarrhea, fulness in the lower abdomen, and sometimes pain in either of the four quadrants. The examination will show ptosis with a low or absence of hydrochloric acid. The relief afforded many of these patients by a properly fitting abdominal support and the administration of hydrochloric acid is dramatic.

Chronic colitis is a cause of obscure abdominal pains in many patients. There are several features which tend to characterize the pain, namely, a tendency to localize at times in any one of the four abdominal quadrants, but at other times to shift from one quadrant to another; its tendency to be aggravated by coarse foods, fruits and constipation; and its tendency to occur in transient cramp-like paroxysms. Nervous symptoms, neurasthenia, headache, neuralgia and tachycardia are prominent. The X-ray will give valuable assistance in clarifying the diagnosis.

Plumbism may cause severe attacks of cramp-like pain in the epigastric or umbilical regions. In acute plumbism there are paroxysmal pains, nausea, vomiting, thirst, diarrhea or constipation, peripheral or optic neuritis and prostration. In chronic lead poisoning the symptoms make their appearance more slowly. There may be a period of obscure symptoms, which include digestive disturbances, foul breath and constipation. These become more severe, and when associated with mild or agonizing abdominal pain, headaches, general lassitude, neuritis, pallor, basophilic degeneration of the red blood cells with anemia, are strongly suggestive of lead poisoning. The history of exposure to lead, and the presence of the "lead line" on the gums makes the diagnosis certain.

Intestinal parasites may cause colicky pains simulating appendicitis in young persons. An increased appetite, pallor, under-nutrition, irritability, malaise, and nervous symptoms of varying degrees may be given in the history. A diminished number of erythrocytes, and aneosinophilia should suggest parasitic infestation. Finding ova in the stools will definitely clinch the diagnosis.

Primary carcinoma and sarcoma of the liver are rare. The pain as a rule is severe, more so than in secondary carcinoma and may be felt in the upper right quadrant and in the back. During the early stages of pain there is confusion with a gall-bladder condition, but a gall-bladder history may be lacking, the liver enlarged and irregular, and the course rapidly downward.

Influenza with severe abdominal pain as the predominating symptom occurs in a few cases. The pain may be localized in either of the quadrants, but more often is perceived on the right side where it is confused with



acute appendicitis or cholecystitis. The sudden onset, prostration, high pulse rate as well as temperature and sweating would point toward influenza. The diagnosis of influenza abdominalis is a precarious one, but it is easier to make in times of an epidemic. Even then the diagnosis can only be made by exclusion. One must bear in mind particularly that an apparent attack of influenza may intensify a chronic process in the appendix or gall-bladder which may eventuate in an acute surgical lesion.

The presence of abdominal pains in neurasthenics should always be a subject of considerable investigation before a definite diagnosis is made. The neurasthenic is frequently subject to the delusion that there is something radically wrong in the abdomen and even though removal of an ovary or the appendix may relieve the symptoms for a time the pain soon returns, or is found in a new location, so that it is almost impossible to relieve this class of people with or without an operation.

After a review of the non-surgical conditions that may cause pain in the abdomen it may be well to consider some general points which often serve as important leads in our deductions. The time of life in which the pains more commonly occur is a valuable guide as to the probable cause. Cardiac lesions of which coronary thrombosis is the most outstanding, causing pain in the epigastrium, is more likely to occur in elderly persons, while cholecystitis is found more frequently in persons less advanced in years. Acute pancreatic disease may occur in persons of middle age or just beyond, and perforated gastric or duodenal ulcer tends to occur more frequently in young and middle aged people. Primary hepatic carcinoma is more likely to occur in persons in the cancer age, though we have seen it occur in a girl of twenty years. Neurosyphilis usually develops years after the initial lesion, hence we expect to find it more often after the fortieth year. Lesions in the thorax with symptoms simulating abdominal pathology are met more frequently in children and young adults, though they may be met in middle aged individuals. Intestinal parasites are more common in children and young adults. Herpes zoster and intercostal neuralgia may occur at any age, while influenza abdominalis probably attacks more frequently individuals before the forty-fifth year. Colitis

is more frequent in the middle aged. Plumbism is usually an occupational disease.

A detailed history is essential, and except in the gravest emergency it should not be hurried over. A careful inquiry might bring to light the history in early years of an infection notorious for producing changes in the heart, blood vessels and kidneys, an important point to bear in mind when dealing with a case of suspected coronary thrombosis. Many times the history will reveal certain symptoms which will direct the attention of the clinician to the cardio-respiratory, gastro-intestinal and nervous systems. The clinician who properly evaluates symptoms may see in them evidences of disease which may be the cause of the patient's complaint. The type of pain, its manner of onset, its location and duration, and the associated symptoms must be carefully analyzed.

The physical examination should be equally searching. The four cardinal methods of examination should be employed freely and in a deliberate manner. The chest should be examined with the same special care that is devoted to the abdomen. When the symptoms are vague and the need for haste is not urgent, repeated and additional examinations, including laboratory examinations, should be made at short intervals. The facts derived from the history, physical findings and laboratory examinations are studied by the clinician and his interpretation of these facts is the working diagnosis.

#### CONCLUSIONS

The correct diagnosis of the cause of abdominal pain is dependent upon the thoroughness of the study of the case. The differential diagnosis must not only include the surgical possibilities within the abdomen, but also non-surgical conditions both within and without the abdomen that may give similar manifestations. A thorough analysis and correlation of all the facts obtainable from a careful history, a diligent physical examination, supplemented by such laboratory tests as are necessary, and close observation of the patient, will aid in arriving more quickly at a diagnosis in the majority of cases.

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#### CHEER UP!

Grim trouble lasteth but a day,

Cheer up, cheer up, ye blue ones!

Your sorrows soon will pass away—

And then you'll have some new ones!

—*The Date Palm.*

## PLASTIC AND RECONSTRUCTIVE SURGERY OF THE FACE AND JAWS.\*

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Defects and deformities of the face and jaws may be congenital, they may be due to trauma, to disease, or to the destruction of tissue incident to the treatment of disease.

When a case of this character presents itself, careful attention must be given to the following points:

(1). It is important to know whether the original disease causing the condition still exists. If a saddle nose deformity be due to syphilis, for example, it is obviously unwise to attempt correction while the syphilis is still active.

(2). Presence of infection. Infection in soft tissues or bone renders them unsuitable for plastic operations. Before attempting reconstruction, all possible sources of infection must be eradicated.

(3). Before the secondary correction of deformities after injury, sufficient time must be allowed to elapse for the thorough seasoning of scar tissue. The time required may be set at four to six months after the injury.

(4). The general physical condition must be taken into consideration. Persons suffering from diabetes, secondary anemia, cardiac, renal or pulmonary disease offer obstacles to the best results, and the plan of procedure must be modified accordingly.

(5). The age of the patient may influence the procedure to be adopted. It is obviously unwise to subject a patient of advanced years to extensive reconstructive procedures requiring several operations. On the other hand, in children certain congenital deformities are best postponed until full growth has been attained.

(6). The social status, occupation and economic considerations may be important factors in determining the type of reconstructive work.

(7). The mental attitude of the patient should never be overlooked. As Blair so aptly remarks, we must treat what is behind the deformed face as well as the deformity itself. An excellent physical result does not necessarily remove the inferiority complex. On

the other hand, a mediocre result from the standpoint of the operator may be entirely satisfactory to the patient. The morale of these patients is frequently at a very low ebb, rendering them entirely unfit to go through with a series of nerve-wracking experiences often of several months' duration. Before accepting the case the surgeon should explain in detail just what has to be done and the possibility of unexpected complications that may arise during treatment to prolong it.

(8). There should be a very careful examination to diagnose the deformity accurately. An apparent extensive loss of tissue may on examination prove to be simply due to displacement, practically all of the tissue being present. If the deformity involves bone, X-ray examination may afford valuable information.

(9). The case should be recorded and studied by means of photographs, measurements, plaster of Paris casts, etc. These records are of value in comparing results after operation with the original condition, and also afford a means of planning out the procedures to be followed. Comparative photographs before, during and after treatment should be made as nearly as possible under the same conditions, such as position, size, length of exposure, etc. The keeping of careful illustrative records entails almost as much work as the actual treatment of the case.

### SOURCES OF TISSUE USED IN RECONSTRUCTION ABOUT THE FACE AND JAWS

In the correction of a deformity of the soft tissues of the face, the first procedure is to excise the scar tissue, thus allowing as far as possible the replacement of the parts in their normal positions. When this is done, the amount of tissue needed to fill the defect can be readily determined. In the simplest case with very little tissue loss, the introduction of new tissue into the defect may be quite unnecessary. Here, the skin edges are simply undermined so that they can be brought together and sutured without tension. When there has been a noticeable amount of hard or soft tissue loss at the site of the scar, new tissue must be brought in to replace that which has been lost. New tissue is supplied in two forms: by flaps, and by grafts.

By a *flap* is meant a piece of tissue, used to cover or fill a defect, which has been detached from its underlying support, but which still

\*Represented at the Clinic of the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Va., March 21, 1928.



remains partially connected with its original site, and receives nourishment from this attachment until healing has occurred in the new position.

By a *graft* is meant a piece of tissue completely detached from its original position and transferred to fill or cover a defect in an adjacent or distant part of the body.

#### FLAPS

The principal forms of flaps employed about the face and underlying structures may be tabulated as follows:

1. Sliding flaps (French method).
2. Pedicle flaps (Indian method).
  - (a) Direct transfer.
  - (b) Delayed transfer.
  - (c) Tubing of pedicle.
  - (d) Double pedicle.
3. Flaps by regional juxtaposition (Italian method).
4. Flaps by successive migrations (jump flaps).

*Sliding flaps.* This is generally called the French method, although probably originated by Celsus in the first century A. D. A sliding flap is drawn into the defect from the immediate locality after extending incisions in various directions from the original wound and undermining the skin. About the face the use of sliding flaps is limited to defects of minor degrees. When employed for large defects, undue distortion of normal tissues is likely to result.

The sliding flap principle can be applied to subcutaneous fat as well as to skin. For instance, in correction of a scar with a moderate amount of depression after excising the scar and loosening the skin edges, the subcutaneous fat on each side can be undermined for a certain distance so that some of this can be drawn into the centre of the wound to obliterate the depression. The operation is completed by suturing the skin edges.

*Pedicle flaps.* Where the defect is so great that tissues immediately adjacent to the wound are not available, a skin flap must be raised at some more distant point, carried over and sutured into the defect, but left attached by a pedicle to its original site for nourishment until establishment of circulation between the flap and its new surroundings, after which the pedicle may be severed and returned if desired to its original bed. This is the method of choice for restoring defects of the face, since

it furnishes new tissue of good blood supply, and with a minimum amount of distortion of normal structures.

In transferring large pedicle skin flaps from a distance, due attention must be given to the insuring of a proper blood supply through the pedicle. Wherever possible, it is advisable to plan the flap so that it runs in the general direction of the arterial blood supply. Special efforts have been directed during recent years to the development of procedures which will permit the use of longer and larger flaps from a greater distance, thus avoiding further disfigurement of visible parts of the body and permitting the surgical correction of greater defects than was heretofore possible. Of these methods, the most important are: delayed transfer of the flap; tubing the pedicle; and the use of a double pedicled flap.

The *delayed transfer* method, advocated by Blair,<sup>1</sup> consists in first completely raising the flap and then immediately suturing it back into its original bed, the transfer to the new position being delayed for a period varying from six days to two weeks. This permits the use of a longer, narrower and thinner flap than by immediate transfer. If the flap will not survive, it is an advantage to have this fact demonstrated before transfer rather than after placing it in its new position.

The *tubed pedicle* method consists in preparing the pedicle by making two parallel incisions from two to three inches apart, raising the skin between them, closing the defect by bringing its edges together after undermining, and then suturing together the parallel edges of the pedicle so that the latter takes the form of a tube or cylinder with skin surface outward. By this procedure the flap gradually gains its main blood supply through the pedicle and a much larger flap from a greater distance can be utilized. As there is practically no raw granulating surface exposed, the wound as a rule remains much cleaner than where the ordinary flat pedicle is employed. After ten days to three weeks, a flap continuous with the distal end of the pedicle can be raised and transferred to fill the defect. At a third operation two to four weeks later, the pedicle is severed, and either unrolled and returned to its original site or utilized for further repair, or it may be discarded. This procedure was worked out independently by Filatoff<sup>2</sup> and Gillies,<sup>3</sup> though to Gillies certainly

belong the credit for introducing it to general use.

The *double pedicled* flap method consists in raising a flap attached by a pedicle from each side of the median line and sliding it up or down to the part to be supplied with new tissue. A flap can be slid up from the chest or neck in this manner to restore the chin or lips. A double pedicled flap from across the scalp, attached to the temporal region at each end, can be brought down like the chin strap of a hat, to restore the lower lip and the chin, in the male, the hair on the flap being advantageous in forming a beard and concealing the scars.

*Flaps by regional juxtaposition*, or Italian method. This is the use of a pedicled skin flap raised from the arm or leg to repair a defect of another part of the body, the two parts being held in juxtaposition by artificial fixation during the time required for healing. From a practical standpoint the skin of the arm just above the elbow is most available for facial defects. A suitably sized and shaped flap is raised from the anterior surface of the arm and sutured into the facial defect. The parts are held together by fixing the hand and forearm over the top of the head with plaster of Paris dressings for about two weeks. After this time, the arm pedicle can be severed, the plaster fixation removed and the flap trimmed and suitably adjusted in its new position. The advantages of this method are that an abundant supply of tissue can be had without additional scars about the face. It has great disadvantages, however, viz., the difficulty in keeping the parts clean and avoiding infection, dissimilarity of texture of skin of arm and face, and above all, the extreme discomfort suffered by the patient. In view of these considerations, and the usual availability of other more suitable tissues, the Italian method should be used only as a last resort. A modification employed frequently by Ferris Smith, which does away with some of the disadvantages has a certain field of usefulness. This consists in preparing a tubed pedicle on the anterior surface of the arm from the shoulder toward the elbow, carrying a flap formed at the lower end of the tube up to the face, with fixation of the arm in the Velpeau position, the head being held with plaster of Paris, inclined toward the shoulder. This position is much more comfortable for the patient than

the original Italian position and the parts are more easily kept clean.

*Flaps by successive migrations.* A flap is raised at some distant part of the body and by successive transplantations of first one end and then the other is gradually made to approach its final site on the face. Or, a flap from the abdomen or buttock may be grafted on the hand and by this means be transported to the face. This method is very seldom employed, but its possibilities should not be overlooked in cases where other means of supplying tissue may not be available.

The principal sources of pedicle flaps for supplying defects of the face may be summed up as follows:

- (1). *Forehead.* Delayed transfer. Especially for nose.
  - (a) Supraorbital and angular pedicle.
  - (b) Temporal pedicle.
- (2). *Scalp.* Double pedicle for defects of chin and lips. Delayed transfer.
- (3). *Neck.* For small defects of cheek, lips, etc. Delayed transfer or tubed pedicle. Has the disadvantage that it makes additional visible scars.
- (4). *Chest.* Tubed pedicle. For large defects of face.
- (5). *Back.* Tubed pedicle. For large defects of face.
- (6). *Arms.* Tubed pedicle from anterior surface of arm. Plaster fixation in Velpeau position. For large defects of face.

#### GRAFTS

Grafts, or free tissue transplants, are employed for covering or filling defects either in conjunction with flaps or independently of them. It has been well established to our satisfaction that only auto-grafts, *i. e.*, transplants taken from the same individual, will give satisfactory results.

The principal tissues used as free transplants in the facial region, and their sources, are as follows:

1. Skin.
  - (a) Epidermic (Ollier-Thiersch). From anterior surface of thigh, or arm.
  - (b) Full-thickness (Wolfe-Krause). From abdomen.
2. Fat and fascia lata of thigh.



## 3. Cartilage.

(a) Ear.

(b) Costal.

## 4. Bone.

(a) Crest of ilium.

(b) Osteo-periosteal from tibia.

1. *Skin grafts.* (a) The *epidermic* (Ollier-Thiersch) graft is employed for covering superficial raw external surfaces, and for replacing lost mucous membrane of the mouth, nose, etc. This form of skin graft has the advantage that it usually takes readily, even in the presence of some infection, and in the oral cavity, but undergoes considerable shrinkage and does not give such a soft pliable surface after transplantation as the full-thickness graft. The best support for the graft is a piece of dental impression compound, as suggested by Esser. This is softened in hot water and moulded to the raw surface to be covered, thus giving an exact imprint of the skin defect. The piece of compound is now chilled with cold water. The skin graft, raw surface out, is spread upon the compound without wrinkling, and by this means is applied to the defect. The compound is fixed firmly in place with adhesive plaster and a bandage. The dressing should not be disturbed for seven to ten days. Upon removal of the compound mould, the skin graft should be found firmly adherent to the raw surface of the defect.

*Replacement of lost mucous membrane.* Free epidermic grafts can be used in the mouth and nose to replace lost mucous membrane. This method is useful where, as a result of ulceration, from traumatism or disease, adhesions take place between the lips or cheeks and the gum covering the alveolar process, interfering with opening of the mouth, embarrassing speech, or preventing the insertion of artificial dentures. The development of this procedure by Esser and others has been well described by Dorrance.<sup>4</sup> After dissection of the adhesions and scar tissue, the graft on dental impression compound is held in place against the raw surface by means of a splint attached to the teeth. The Thiersch grafts when first introduced into the mouth are pale in color, but after several months come to resemble normal mucous membrane. The use of the Ollier-Thiersch skin graft for lining the maxillary sinus after removal of its mucous membrane in radical operations has been ad-

vocated by Sheehan<sup>5</sup> and Ferris Smith.<sup>6</sup> The graft is held in firm contact with the bony wall of the sinus by means of a small rubber balloon, which after insertion is inflated, its nozzle protruding from the nostril.

(b) The *full-thickness* skin graft can be used for supplying losses of skin of varying extent, and is also advocated by some surgeons for furnishing lining for the mouth and nose. It makes a more pliable and natural-appearing replacement than the epidermic graft, does not undergo so much shrinkage, and can be used for larger defects. The full-thickness graft does not take so readily as the epidermic graft. It is not adapted to covering granulating surfaces. It should only be used on a fresh wound or on one made by excision of scar tissue. Each part of the full-thickness graft depends for its nourishment upon the tissue immediately beneath it; therefore, there is theoretically no limit to its size. Receipt of nourishment is favored by cutting the graft to the exact size of or slightly smaller than the defect, suturing its edges exactly to the edges of the defect under slight tension, so that its vascular spaces will be held open, and keep every part of it closely in contact with the raw surface beneath by a pressure dressing. A tin-foil pattern is first made of the raw surface to be covered. This pattern is applied to a suitable area of the abdominal wall and the portion of skin to be removed is accurately traced with the knife. The graft should include the full thickness of the skin, but should not take any of the subcutaneous fat. It is transferred to the raw surface to be covered, and accurately fastened in place with interrupted dermal or horsehair sutures. The graft is covered with several layers of gauze impregnated with 3 per cent xeroform ointment, and the desired pressure is furnished by application over this of a large soft sea sponge compressed slightly with adhesive strips and a bandage. The proper amount of pressure is gauged by experience. Too much pressure will result in necrosis, and too little pressure will cause accumulation of blood and serum under the graft. The pressure dressing should not be removed for at least four days, and if it becomes necessary to change the gauze, the pressure should be reapplied and kept up for at least ten days. For further technical details the reader is referred to the article by Blair,<sup>7</sup> Ferris Smith,<sup>8</sup> instead of sponge, uses

for pressure a rubber bag inflated with air. He has found by actual measurement with the sphygmomanometer that the optimum pressure is about 30 mm. of mercury.

2. *Fat and fascia grafts.* These tissue transplants are used about the face to build out depressions due to loss of soft tissue from various causes. Subcutaneous fat from the abdomen or gluteal region has been employed, but it has been found that a good deal of absorption takes place after transplantation. *Fascia lata*, with or without overlying fat, has been found to give much more permanent results.

3. *Cartilage.* Cartilage is employed for building out defects of hard tissues, such as bone and cartilage. It is not to be used for restoration of continuity of movable bones, such as the mandible, but simply to add prominence to parts like the bridge of the nose or the chin. Transplanted cartilage does not unite with bone, but becomes connected with it by dense fibrous tissue.

(a) *Ear cartilage.* The yellow elastic cartilage found in the external ear may sometimes be used advantageously for rectifying very small defects, such as in the ala or the bridge of the nose. This type of cartilage after transplantation undergoes absorption and replacement by fibrous tissue, so that it is not adapted for large defects. A suitable piece of this cartilage can be removed under local anesthesia through a small incision over the tragus or on the posterior surface of the concha, leaving an unnoticeable scar.

(b) *Costal cartilage.* There has been much discussion regarding the best material for building out defects of the supporting structures of the face. At one time paraffin was extensively used, but it should have no place in reconstructive surgery of the face, as it is difficult to control in injection, causing unsightly disfigurements, undergoes change in shape, and has caused embolism and tumor formation. Celluloid, ivory and other foreign substances have their advocates, particularly in Germany, Austria and New York. They have the advantage that they are easily inserted without mutilating other parts of the body, but are subject to all the disadvantages of any foreign body, and extrusion is possible at any time. Transplanted bone as a support for the bridge of the nose is employed by some surgeons. It is a well-known fact that a bone

graft embedded in soft tissues will usually undergo absorption in time, and for permanency it must be in contact with good bone at each end. This obviously renders it unsuitable as a nasal support in most cases. Also, the slightest infection will lead to loss of the bone graft. Costal cartilage is by far the most suitable of all substances to build out defects of supporting structures of the face, especially the bridge of the nose. It is not difficult to obtain in any quantity desired, is easily trimmed to suitable size and shape, and rarely undergoes absorption when embedded in soft tissues. The cartilage transplant is not necessarily lost if suppuration occurs. In the removal of costal cartilage a longitudinal incision three inches in length is made three inches to the right or left of the median line, the lower part of the incision extending over the costal margin. The fibres of the rectus abdominis muscle are separated, bringing into view the lower costal cartilages. These being below the attachment of the pleura, there is no danger in their removal of opening into the pleural cavity with production of pneumothorax. A piece of the full thickness of the eighth or ninth cartilage, as long as necessary, including the perichondrium, is removed. The chest wound is closed with buried catgut and superficial silkworm gut sutures. The cartilage is then trimmed to proper size and shape to fill the fascial defect. As much as possible of the perichondrium is preserved. During the trimming the cartilage is held in Allis forceps and not touched with the hands. The technique of inserting the cartilage into its new position varies with the defect to be filled. Any considerable portion of cartilage left over can be inserted beneath the skin through the chest incision, whence it can be easily removed under local anesthesia at a later date if needed for further reconstruction.

4. *Bone.* Bone transplantation to the facial region has its chief indication in losses of continuity of the mandible, but is also used for cranial defects and for building out the contour of other bones. In the mandible, bone grafting is useful for restoring continuity after fractures with non-union, and also for supplying bone lost as a result of necrosis or neoplasm.

#### METHODS OF BONE GRAFTING IN THE MANDIBLE, AND OTHER FACIAL BONES

For restoring the lost bone substance, sev-



eral methods have been used, according to the preference of the individual operator and the requirements of the given case. Aside from the particular source of the graft, success depends upon certain underlying principles, among which are, waiting for elimination of all sepsis in the field of operation, proper preliminary fixation of fragments in case of fracture, by interdental splints, the employment of rigid aseptic technique, and the avoidance of opening into the buccal cavity at operation.

After thorough trial of several methods and sources of bone graft for the mandible, we have found two to be superior to all others, each having its own indications:

1. *Osteo-periosteal graft of Delagénière.* This consists in the removal of a thin strip of cortical layer of bone from the antero-internal surface of the tibia with overlying periosteum attached and laying two or three pieces of this between the mandibular fragments after preparation of subperiosteal pockets and freshening of the bone ends. The osteo-periosteal graft contains all of the elements necessary for osteogenesis, is flexible, and is easily adjustable to the size and shape of the defect. The technique of removal (shaving off with a broad chisel) and insertion is simpler than that of any of the other methods. It causes no disability in the leg. It generally requires longer to obtain consolidation than by other methods, and no dependence, of course, can be placed on the rigidity of the graft itself for fixation. While this form of graft can be used for losses of substance of almost any extent and any position, we reserve it for defects of 2 cm. or less, and in cases where the external contour of the face shows little or no deficiency on account of the bone loss.

2. *Graft from the crest of the ilium.* An incision is made along the crest of the ilium down to the periosteum, beginning at the anterior superior spine, back as far as necessary. The muscles attached to the inner and outer sides of the crest are stripped down and a piece of bone is removed with a metacarpal saw comprising the full thickness of the crest of the ilium and of sufficient length and depth to fill the gap in the mandible, allowance being made for overlapping the mandibular fragments at each end. The graft is fixed in position by fine brass wire passed through holes drilled in the bone.

The crest of the ilium furnishes a large,

thick piece of bone, of porous structure closely allied to that of the mandible, and is easily penetrated by new vascular supply. It can be used for losses of substance of almost any size, and can be readily cut to suitable shape. Its bulk adapts it to filling defects which cause considerable visible deformity. The disability produced by removal of the graft is quite temporary, and the danger negligible. Union should occur in about twelve weeks. For more complete details of bone grafting, the reader is referred to the article by Ivy and Epes.<sup>9</sup>

*Restoration of full-thickness defects of cheeks, lips, nose, etc.* One of the most important principles to be recognized in the repair of facial deformities is that, in defects involving the full thickness of the lip, cheek, nose, etc., it is necessary to replace the lost mucous lining as well as the skin covering. If such a defect be simply covered with a single flap with raw surface exposed inside, unsightly contraction will occur, and healing of the edges may not take place.

The chief ways of carrying out the above mentioned principle may be summarized as follows:

1. Folding over the distal end of a pedicled flap so that it will have skin on both sides.

2. Hinge flap, inverting skin from edge of defect, and covering raw surface with separate pedicled flap.

3. Separate pedicled flaps of skin for lining and covering.

4. Pedicled or sliding flaps of neighboring mucous membrane, combined with skin flaps for covering.

5. Thiersch or Wolfe graft applied to under surface of pedicled covering flap, before transfer.

*Removal of hair.* It is sometimes necessary to use flaps of hair-bearing skin in restoring defects of parts where it is undesirable for hair to be present, such as the nose, or inside the mouth. Various suggestions have been made for destroying the hair follicles. One is exposure to radiation, either before or after transfer of the flap to its new position. However, it is very difficult to produce permanent destruction of hair follicles with X-ray dosage that will be harmless to other tissues of the skin. Electrolytic depilation is more certain, and is useful for removing a few scattered hairs, but is very laborious and almost impracticable where the growth of hair is

abundant. A more practical method is that advocated by Rethi.<sup>10</sup> After the hair-bearing skin flap has been raised, with a razor or sharp scalpel the layer containing the hair follicles is trimmed off from its under surface. By delaying transfer of the flap for ten days, this thinning process is not so likely to interfere with nutrition.

(The principles outlined in the above were applied to cases illustrated by lantern slides.)

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### THE CLINICAL ASSOCIATIONS OF ASCITES.\*

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Speaking of the narrowing influence of concentration in a single field of medicine, Osler once said that the corrective of this fatal tendency of specialization lies in the fact that in all branches of practice "problems in physiology and pathology touch at every point the commonest affections, and exercised in these, if only in the earlier years of professional life, a man is chastened, so to speak, and can escape the deadening effect of routine". The words of the master have lost none of their force. While it is true that in the evolution of medicine, looked at in the far perspective of history, Harvey and Hunter, Vesalius and Virchow, Paré and Lister are contemporaries all, a glance shows that no generation of men has made more progress than the present in the study of bodily function.

For example, Withering, you may remember, had the scantiest conception of the real mode of action possessed by the foxglove that he had recognized as the essential drug in the Shropshire herb woman's mysterious

formula, and it was not until a century had passed, and men like Cushny and Mackenzie had arrived, by means of the precision of graphic methods, at some understanding of the physiology of the heart beat, that digitalis could be used in a rational way. How much less effective would be our knowledge of diabetes mellitus, and the use of insulin, if, indeed, this could have been perfected, without an easy method at our disposal of determining the blood sugar? If Richard Bright or William Stokes or Ludwig Traube could return today to clinical medicine, surely their practice would still be on a high level, but just as certainly, I believe, would they be severely handicapped until they had learned to use the blood count, the sphygmomanometer, the bacteriological and serological supports of modern diagnosis, and a score of other methods by means of which we investigate disorders of structure and function that often are not accessible, early enough or definitely enough, or at all, to eye, hand or ear.

#### FACTORS IN WATER BALANCE

And one of these expanding chapters in practical physiology and therapeutics has to do with the fate of water in the body, its normal use and elimination, or the forms taken by its pathological retention. The problems of edema, and among other forms its exhibition as ascites, go deeper often than the mere mechanical obstruction to the flow of blood or lymph, and are to be understood, and successfully treated, only in terms of tissue metabolism, of the varying amounts of sodium, potassium, calcium and their salts which are present, of protein starvation, of thyroid insufficiency—in a word, all factors which play a part in water balance.

Among many remarkable things in metabolism, not the least notable is the exactness with which the weight of the body is maintained over many years at an almost constant level. This means, as Dubois has pointed out, that automatically—unless in our high state of civilization, the mechanisms of nature are overruled—the intake of food and drink and the expenditure of energy must have been mutually adjusted over all this long period within an error of a few hundredths of one per cent. And of the physiological processes to which this state of equilibrium is

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due, the importance of water metabolism is soon made clear when its regulation is upset by disease.

In a dry world, life cannot persist. Water is essential to all those chemical reactions, physical changes, energy transformations, which lie at the bottom of cellular activity. Water is a vehicle for the transport of nutriment and of heat; it lubricates the internal surfaces of the body; loosely combined, or taking the most intimate part in the tissue structure, it forms from 60 to 70 per cent of the normal body weight.

In considering, therefore, the ebb and flow of the water level of the body, it will be worth while to glance at the sources of its water supply, and its means of disposal. Ordinarily in health our daily intake of liquid is 1,500 c.c. or six to eight glasses of water or its equivalent. Rabbits and guinea pigs, it is said, can live for years without drinking water, but in the physiology of human nutrition, and in therapeutics more often than is realized, if water is not consumed as such or in other liquids, it must be obtained in other ways, or the economy suffers. Inanition fever in infants and the state of a patient with diabetes insipidus uncontrolled by pituitrin are examples of water deprivation.

On the other hand, water makes up so large a part of the so-called solid foods, that a patient's diet, quite apart from its liquids, may readily contain from 1,200 to 1,500 c.c. of water a day, a fact of much importance when we come to treat a person with some form of water retention.

#### PRACTICAL QUANTITATIVE METHODS

It is clear, then, that on an ordinary well balanced diet, the intake of fluid from all sources will approximate 2,500 to 3,000 c.c., of which only about half, or 1,500 c.c., will be excreted by the kidney. Consequently, when a nurse records the volume of urine as the total output of fluid for twenty-four hours, she has not accounted for the water vaporized by the lungs and skin—what the ancients called the "insensible perspiration"—nor that excreted in the feces, and, under some conditions, such as bronchiectasis, in the sputum. Nevertheless, a change in the ordinary ratio of fluid intake to urine output does have a definite clinical significance, and centuries of observation since have borne out the prog-

nostic saying of Celsus that "if more fluid is excreted than is taken, so at length there is hope of health".

Variations in the water balance are more accurately and practically studied, in my opinion, by measuring changes in body weight, a method which began with the famous steelyard of Sanctorius, and with which he carried out weighings on himself over a period of thirty years. After all, as Benedict and Root have recently demonstrated once more, accurate use of scales is a first rate means of studying metabolism.

#### DIFFERENTIATION AND CLASSIFICATION OF ASCITES

Accumulations of free liquid in the serous cavities must have been an early observation: the Hippocratic succussion splash—obtained by shaking the patient when air and fluid are in contact, is internal evidence of its antiquity. Though he admitted that his distinctions were of little practical use, Sauvages, in the 18th century, had arrived at the tabulation of twenty-nine varieties of ascites. William Cullen, of Edinburgh, simplified this list into two groups—one with swelling of the whole abdomen and evident fluctuation; the other, sacculated enlargement. The latter form appears to have included ovarian cyst and localized inflammations; the former group, ascites due to visceral obstruction, debility and tenuity of the blood, with further distinctions as to the character of the fluid, whether clear, chylous, purulent, urinous, and oily. Our present classification is but little removed: we endeavor to exclude the cysts of ovary, pancreas, and hydatids, and we attempt to delimit the non-inflammatory hydroperitoneum from the exudation arising in such chronic processes as tuberculous peritonitis and cancer of the peritoneum. Acute peritonitis, I assume, can usually be differentiated readily and treated surgically. Regarding ascites, it will be of interest, I hope, to present brief clinical notes on some of the typical problems in diagnosis and treatment which have been met with recently in hospital and private practice.

#### PORTAL STASIS IN HEPATIC CIRRHOSIS

When I find a patient with abdominal distention, there flashes across my mind a little nugget of clinical gold—one of my few clear memories of an excellent course in obstetrics—

which consists in a warning to keep in mind the five "f's": fat, feces, fluid, flatus and foetus. Of course, the differentiation is usually easily made, but my recollection of this aphorism was refreshed by an experience with an old lady nearing 70. As a girl of 17, she had been married off to a man much her senior and of dissipated habits, and it resulted that for several years her intake of alcohol was rather large and constant. When this husband died, she married again, and the rest of her life was abstemious. Nevertheless, at 67 her abdomen began to swell, and the condition seemed clearly one of portal cirrhosis, and the only factor at all definite was the history of alcoholism in her early life.

Except for the exhaustion which was the natural result of carrying her enormous burden, for she was a short thin woman, and the abdominal protrusion was most striking, her physical condition was good. After paracentesis, 16 liters of transudate being removed, her life was happy and comfortable for six months. Then another large amount was tapped, and when, several months later, she again presented herself with distinct swelling of the abdomen, a third tapping was arranged for. Much to my surprise and chagrin, an attempt to obtain free fluid with the trocar, first in one side and then the other, was attended by failure. Though there was moderate dullness in the flanks, I was able to withdraw only a few ounces of liquid, and since nothing in the history or findings suggested inflammation and encapsulation, I was forced to conclude that I had been deceived by the marked distention of a relaxed abdominal wall by intestinal inflation. Waiting before the next occasion until the fluid wave was obtained, dullness being present high in the flanks, the ascitic yield was excellent. With tapplings at intervals, this patient went comfortably for about three years. She died while I was out of the city and a necropsy was not obtained.

#### OVARIAN CYST

The next patient presented a different problem. She was a white woman, 84 years of age, who was seen with Dr. W. E. Whitson, the history being of an onset two years previously with pain in the left flank, gradual swelling of feet and legs along with enlargement of the abdomen. Difficulty in breathing

had followed, and there were spells of suffocation.

Her old family physician had treated her for "kidney trouble", and when he died, and Dr. Whitson was called in, all the members of the household, except the patient, were rather indignant when told that something could be done for her.

The examination in the hospital, after a day in bed, showed no edema of the ankles and no pulmonary congestion. The heart was somewhat displaced but not definitely enlarged, though the blood pressure was 180/100. Instead of the bulging in the flanks characteristic of free fluid, the large abdominal tumor maintained its symmetrical up-standing contour, and the diagnosis of ovarian cyst was made. By paracentesis several gallons of dark green fluid were obtained, and two weeks later Dr. C. S. White removed a multilocular cyst, the size of a football, attached by a small pedicle to the left ovary.

This fall, the patient, very much alive, was on her way to Florida by automobile.

#### SPLENIC ANEMIA

The presence of ascites may be a finding which assures a diagnosis, or it may be one of many signs in a complex diagnostic problem.

An Italian male, aged 61, a retired pushcart vendor, had had dull pain in the left side and back intermittently for seven years. Gastrointestinal symptoms had been absent, the urinary tract was normal, venereal disease and malaria were denied.

Physical examination disclosed a man of good nutrition (weight 145 lbs., height 66 inches) and moderate pallor. There were a few carious teeth, the heart and lungs were clear, blood pressure 160/70, pulse rate 60, rhythm regular. There was shifting dullness in the flanks. The liver was easily palpable, firm, and not tender. The spleen was felt as a firm edge, with a notch, three fingers' breadth below the costal margin.

The hemoglobin was 69 per cent, the red blood cells 3,610,000 per cmm., without abnormal forms. The leukocytes numbered 14,400, 89 per cent polymorphonuclears. The Wassermann and Kahn blood tests were negative; the chemical examinations of the blood showed normal blood sugar, nitrogen and bilirubin values.



The diagnosis of splenic anemia (Banti's disease) was made, and splenectomy was performed. In removing this organ, a short and aberrant splenic artery was torn, and the ensuing hemorrhage brought shock and made necessary a transfusion. The patient did not recover strength and died two weeks later. The spleen showed the fibrotic and proliferative changes characteristic of Banti's form of splenic anemia.

#### METASTATIC TUMORS IN LIVER AND SUPRARENAL GLANDS

A patient whose diagnostic study was of unusual interest was a white woman, aged 36 years, whose chief complaint was pain of four months duration, in the upper lumbar region on both sides. There was a family history of pulmonary tuberculosis, and in her girlhood, from 13 to 20, when the menstrual periods were irregular, the patient was suspected of being tuberculous.

At the age of 33, a mass was discovered in the right breast, which soon after was amputated.

Urological and gynecological examinations immediately before admission had shown no facts significant enough to explain her symptoms.

The essential physical findings were underweight, weakness, a dark skin, which the patient, a brunette, believed had been increasing in depth of color for several months. There were no areas of pigmentation, nor were the sclerae at this time considered icteric. The blood pressure was 104/64, and a blood sugar estimation had shown a level of 67 mg. There was apical fibrosis, but no rales were heard, the heart was clear, the liver and spleen were not felt. There was tenderness, but no masses, in the kidney regions. The urine was normal: the blood showed a secondary anemia. The impression was recorded of suprarenal insufficiency, due probably to Addison's disease.

A few days later, it was definite that jaundice was present. There was evidence of fluid in the abdomen, and when the report was received of a pathological diagnosis of adenocarcinoma of the breast removed three years before, the diagnosis was made of obstructive jaundice, due probably to a metastasis occluding the hepatic duct. The exploratory laparotomy revealed a liver studded with metastatic tumors, and at the necropsy four weeks later,

the right suprarenal gland also was found largely destroyed by metastasis.

Passing over the effusions which occur in tuberculous peritonitis and in carcinomatosis, both of which usually may be readily recognized by accompanying pathological changes, and the first of which is often, if the tuberculous lesions elsewhere permit, successfully treated by "letting in sunlight", formerly by surgery and now more commonly by heliotherapy, we come to that group of patients with ascites which is the largest and most important of all.

#### THE ASCITES OF HEART AND KIDNEY FAILURE

The accumulations of liquid in the peritoneal cavity, either alone or with involvement of the pleural cavity or the pericardial sac, or in the course of anasarca, are the result occasionally of nephritis, more rarely of nephrosis, and commonly of cardiac failure, and give us our best opportunity to apply our fundamental knowledge of circulatory and metabolic therapeutics. The measures to be emphasized are rest, the restriction of fluid intake, a diet low in sodium chloride, and effective use of digitalis. In addition to these, in case of need, we may employ other means of promoting circulation or diuresis, among the latter being the combination, used successfully also in other forms of ascites, of ammonium chloride and novasurol, or merbaphen.

A famous surgeon has said that "the worse the patient, the more you do", and it is often not a bad rule in treating heart disease. The physiological effects of digitalis are sometimes demonstrated to students simply by keeping the patient at rest for a few days. But in the case of C. S., an obese, plethoric man of 50, with an over-burdened, laboring heart, extreme dyspnea, and marked edema and ascites, he was not only put promptly to bed, but started with a two dram dose of the tincture of digitalis and diminishing doses thereafter.

The diet was temporarily restricted to a liter of milk. Diuresis began within twenty-four hours, his dyspnea and ascites vanished, and he left the hospital in ten days a changed man. For two years he maintained compensation, until a relapse occurred in which digitalization was no longer effective. Now theobromine as a diuretic proved of help, while calcium chloride by mouth and novasurol

hypodermatically in one c.c. doses every two or three days for four doses, was a much more effective combination. The patient improved markedly, was able to go to the country for convalescence, but there was overtaken by another attack of heart failure and died.

Prolonged rest was the important element in the treatment of J. B., an Italian, aged 56, who came into the hospital complaining of weakness and shortness of breath, which had been severe for three weeks, though present at intervals for ten years. The patient was thin, long chested, orthopneic, and strikingly cyanosed. In the lungs there were heard many rales and rhonchi, chiefly during expiration, but there was no evidence of hydrothorax.

The heart was greatly enlarged to right and left, but in spite of a shadow in the X-ray plate which suggested pericardial fluid to Dr. Christie, there was no physical evidence of an effusion. Instead, the apex beat was forceful, and retraction was present at each systole. At times at the apex and in the axilla a grating sound of coarse quality could be heard, and its fremitus felt. There was moderate arteriosclerosis and a blood pressure of 140/80.

The abdomen was distinctly distended with fluid and the liver was enlarged, smooth, and somewhat tender. There was edema of the ankles.

The clinical diagnosis was made of adhesive pericarditis and probably peritoneal serositis as part of the entity long known as Pick's disease.

The patient improve steadily with a rest of six weeks in bed, the edema and the free fluid disappeared, but the cardiac signs were unchanged.

#### PARACENTESIS ABDOMINIS

Sometimes in the treatment of ascites following heart failure it seems wise to remove mechanically the embarrassment to the circulation, rather than to attempt to force the liquid through the normal channels of excretion. It is conceivable that the energy is thus saved, the heart might suffice to decide the issue of the difficult situation when cardiac reserve has reached its limit.

Mr. S. is a merchant, aged 37 years, with long standing rheumatic heart disease, who evidently had been experiencing progressive decompensation. During one week he gained

ten pounds in weight in the form of edema and ascites. Placed in bed for three weeks on a dry diet, the ascites persisted and the heart rate reached a level never less than 100 beats, even under full doses of digitalis. Finally, after removal by paracentesis of less than 3 liters of liquid, a relatively small amount but all that could be obtained in this patient, there was an excellent circulatory response. The rest of the fluid remaining in tissues and abdomen was quickly eliminated, and the man has been able to manage his business steadily.

#### THE USE OF QUINIDINE IN AURICULAR FIBRILLATION

An exceptional opportunity to use quinidine came in a waterlogged man of 60 years, whose cardiac decompensation, associated with auricular fibrillation, had not yielded to diet or digitalis. After a preliminary thoracentesis, a course of quinidine was given, but, though an increase in heart rate showed some response to the drug, normal sinus rhythm was not restored. Ten days later, both the hydrothorax, which had reaccumulated, and the fluid in the peritoneum, were drained and the second attempt with quinidine was dramatic in its success. There was prompt diuresis, and the patient, whose life had been despaired of for months, was able to leave his chair and bed and eventually return to business.

Not all of our patients, however, in spite of our best thought and effort, have happy outcomes, and at present we have the problem of a woman of 50 whose shortness of breath, of two years duration, was accompanied by total irregularity of the heart and swelling of the abdomen. There was no liquid to be made out in the pleural cavities and little edema of the ankles. On one occasion, her ascites disappeared after a few doses of novasurol, while on another admission, still later, rest alone was equally successful. Her auricular fibrillation was converted to regular rhythm by quinidine, but the ascites returned. Tapping revealed a fluid with the usual characters of a transudate, though an X-ray plate of the lungs had shown hilus changes considered by the roentgenologist as possibly malignant. Eventually, after much consultation, an exploratory laparotomy was carried out. No evidence of new growth was discovered, and a section of the liver showed an atypical cirrhosis, of the so-called cardiac type, resulting,



it is assumed, from long-standing passive congestion. By a modified Talma operation, an attempt was made to use the omentum, brought forward and placed between the deep and subcutaneous fascia of the abdominal wall, as a new channel for the relief of the ascites. Unfortunately such drainage has not occurred, and it would appear that the patient must submit either to paracentesis at intervals or the more intensive use of ammonium chloride—novasurol diuresis.

#### SUMMARY AND CONCLUSIONS

The clinical associations of ascites, it may be said in summary, are of great diversity, frequency, and practical importance.

The commonest cause of ascites is cardiac failure. The dropsy of renal insufficiency, in the course of nephritis or nephrosis, is closely allied. The ascites which is seen in association with pericarditis as a part of multiple serositis, may be placed in this group.

Portal stasis, usually following primary cirrhosis of the liver, produces a classical form of ascites.

Tuberculous peritonitis and carcinomatosis of the peritoneum occupy distinctive places in the differential diagnosis and therapeutics of fluid within the abdomen.

The accumulations of liquid caused by ovarian tumors, solid or cystic, have especial characters and require surgical intervention.

The treatment of ascites begins with a consideration of the underlying pathophysiologic processes, which are not confined to simple mechanical obstruction of blood or lymph flow, but involve cellular metabolic abnormalities.

Therapeutic emphasis is laid on rest, restriction of sodium chloride and fluid intake, and the use of digitalis. Agents valuable in promoting diuresis include calcium, potassium and ammonium salts, novasurol, thyroid substance where insufficiency of this gland is a factor in edema, perhaps parathyroid hormone to stimulate calcium metabolism, and high protein feeding where large losses of albumin and protein starvation may have taken place. The value of high carbohydrate diets has been suggested both by the course of ascites in experimental hepatic cirrhosis in animals, and by actual clinical results from the use of glucose.\*

\*In the discussion of this paper, Dr. John T. King, of Baltimore, cited the case of a young man with nephritis whose dropsy, not relieved by any of the usual methods of treatment, cleared up rapidly and completely after being placed on a wholly carbohydrate diet.

Water itself may be an efficient diuretic.

Paracentesis abdominis may be used routinely (301 tapplings in a single patient have been recorded), or in an emergency, or in preparation for other methods of treatment. Ascites, it should be remembered, sometimes represents a crisis of portal obstruction or a passing phase of metabolic disorder. One tapping may give the necessary opportunity for the establishment of collateral circulation or physico-chemical equilibrium, and need never be repeated.

It must be said that in general the operative measures, such as the use of the omentum or of cannulae to provide new collateral channels, have met with failure. In splenic anemia, removal of the spleen has sometimes relieved the ascites.

Our understanding of ascites, then, has been greatly advanced in recent years by physiological methods of study. Much remains to be learned of its fundamental causes, but surely it is one more field of medicine where clinical investigation already is yielding rich results in the knowledge and control of disease.

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#### UNUNITED FRACTURES.\*

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Fractures may be either the simplest or the most difficult cases with which a physician has to contend. Most of them are easily reduced and maintained and unite promptly with resumption of function in the usual length of time. The frequency of complications, however, is attested by the fact that there are more damage suits over fractures than any other group of medical cases.

\*Read before the Southwestern Virginia Medical Society, at Wytheville, Va., September 27-28, 1928.

One of the worst complications is non-union. Fortunately, this does not occur very frequently, but we have all seen it many times. Mine and industrial accidents, because of their nature, seem to predispose to non-union.

It is, of course, difficult to say in any individual case just what is the cause of failure of union, but the causes may be grouped under three general heads—mechanical, vascular and constitutional.

The mechanical are the most important factors for us in that they are the basis of most ununited fractures, and are the factors over which we have control. Incomplete reduction with lack of apposition between bone fragments is probably the most important, though in several series of cases which have been reported in the literature, another cause easily took first place. This will be discussed a little later. Wherever there is marked over-riding or wide separation between the bone ends, non-union is not a surprise. The separation is not infrequently due to the interposition of muscle, fascia or other soft tissue between the bone ends, thus preventing contact and union. In these cases, when early, if the bone ends can be brought into contact, union can be expected. Inadequate fixation and immobilization may so disturb the tissue reactions that fibrosis occurs and bone formation is inhibited.

A cause which is partly mechanical and partly circulatory is the early open reduction of the fracture with the use of some non-absorbable metallic device to maintain reduction. Probably the most used are Lane or Sherman plates, bone bands, clamps, screws, nails and wire. It has been conclusively shown by experimental and clinical evidence that bone plates are an important factor in the production of non-union. In two series of cases, referred to above, totalling almost two hundred and fifty, between 60 and 70 per cent had been operated upon before, with few exceptions, for bone plating operations. So that in these cases, this was the most important cause of non-union. We are safe in concluding that early open reduction should only be resorted to in unusual cases, and then bone plates or any other metallic substances never used if reduction can be maintained by any other means. Most of the larger clinics are only using plates where infection is already present. Since the use of skeletal traction has been perfected, a

very small per cent of fractures call for an open reduction.

Among the vascular causes of non-union, severe trauma at the time of injury with extensive divitalization of tissue and interference with blood supply is of great importance. Any fracture in which the soft parts are badly devitalized should be handled most carefully to prevent non-union. These cases often become infected and in this way lessen the probability of union.

Among the constitutional conditions which affect bone healing, syphilis is probably the most important. It certainly delays bone growth and sometimes leads to non-union where mechanical conditions are the very best.

There is no sharp line between delayed union and non-union. However, if union is delayed well beyond the usual period, appropriate methods for stimulation of bone growth should be instituted. These include active and passive motion, massage, baking, electrical stimulation, diet and cod liver oil. Function with adequate protection to prevent deformity will produce firm union instead of non-union in many cases.

Where all these measures fail and non-union persists, operation is necessary. There is now a strong consensus of opinion in favor of osteoperiosteal bone graft. Of course, the inlay and massive grafts are used by a few, but osteoperiosteal grafts in conjunction with an intra-medullary peg to maintain reduction seems to be the method of choice. It has been used by my associate and myself with uniform success for the past four years.

To summarize: The causes of non-union are mechanical, circulatory and constitutional. The most important mechanical causes are poor reduction and fixation, and early open reduction with the use of metallic internal fixation. The most important vascular causes are severe trauma and infection. Syphilis is the most important constitutional cause. All conservative methods should be used to promote bone growth, before considering operation. If these fail, operation is necessary. Osteoperiosteal graft with the use of an intra-medullary peg where some means is needed to maintain reduction is then the method of choice and offers good probability of cure.

*Shenandoah Life Building.*



## GAS ON THE STOMACH: A SYMPTOM OF GASTRIC MOTOR DISTURBANCE.\*

By WILLIAM J. MALLORY, M. D., Washington, D. C.

This unscientific title represents a complaint so common and annoying that it deserves more serious consideration as a symptom complex than it usually receives.

The patient's complaint is of "gas on the stomach." Inquiry elicits, if not all, many of the following more minute details:

Within fifteen minutes or half an hour after eating there is a feeling of weight, fullness, tightness in the upper abdomen. The stomach feels full before the meal is finished. There is a sense of pressure under the heart; sensations run up into the neck, and palpation and embarrassed respiration frequently occur associated with mixed vaso-motor and nervous symptoms. The symptoms are not definitely dependent upon the kind of food eaten, though some articles of diet are said to disagree. On the contrary, there are occasions, not more than a few days part, when anything can be eaten without discomfort.

Fatigue, bother, worry, confusion and excitement seem to predispose the disturbance. Voluntary belching of gas or sour fluid or the eructation after soda relieve temporarily though not permanently. Digestants, such as hydrochloric acid, pepsin, and most remedies directed to aiding digestion or preventing fermentation, fail to give relief.

These symptoms are usually misinterpreted and the diagnosis, if one is made, is often erroneous. Hyperacidity, gastritis and gastric fermentation are sometimes named, and when the complaint persists, ulcer, chronic appendicitis and gall-bladder disease are added to the diagnosis. Rarely one or more abdominal operations are performed without relief.

This condition is not due to hyperacidity, although the eructation of sour fluid sometimes suggests such a cause. The gastric acidity is found normal or sub-normal after a test meal. The eructation is the abnormal feature, not the gastric secretion.

It is not due to gastric fermentation; first, because the symptoms arise after a time too short (fifteen to thirty minutes) for the formation of such volumes of gas as are brought up; second, gastric contents aspirated and kept in a thermostat twenty-four hours produce little or no gas.

Gastritis is not the cause. The history symptoms of laboratory findings are not those of gastritis, either acute or chronic. Nor does the treatment for that condition afford relief. The condition occurs without the history clinical symptoms or laboratory findings of ulcer, gall-bladder disease or chronic appendicitis. It is not relieved by surgical operations and does respond to other treatment.

The condition is a motor disturbance and is not due to altered secretion or failure to digest the food.

A right interpretation of these symptoms is based upon an understanding of the normal motor functions of the stomach, and an appreciation of the manner in which this function is altered.

The lumen of the stomach of normal tonus is small and its content of gas or fluid is slight. The organ is contracted. Normally, on the swallowing of food there is a relaxation of the stomach in proportion to the amount ingested until the organ has become distended approximately to its full size. At this stage there is only a moderate gas bubble at the fundus equal to one-fourth of the total gastric contents. Following this by fifteen or twenty minutes, digestion and peristalsis begin and there is co-ordinate gastric peristalsis and pyloric opening with intermittent evacuation, till the stomach is again empty.

Contrasted with this normal performance, when patients presenting the syndrome above described are examined before the fluoroscope, the following condition is found:

The first swallows of the barium mixture seem to sink to the bottom of a long narrow "fish-hooked" or "J"-shaped stomach. On being told to drink the remainder, patients frequently say, "I can't swallow any more." When asked why, they say, "Because my stomach is already full." This is despite the fact that the stomach is not one-quarter full. The small amount of barium mixture is lying at the bottom, the middle portion is stretched out, and the fundus is occupied by a very large gas bubble. On finally swallowing the usual amount of the barium mixture this is seen lying at the lowest portion of the relaxed stomach and occupying scarcely one-half of the lumen, the remainder being filled with gas,—that is, air. The barium mixture, both at the pyloric and fundus portions, shows a horizontal level and peristalsis is slowly ini-

\*Read before the George Washington University Medical Society, November 17, 1928.

tiated. Belching sometimes occurs with the beginning of effective peristalsis, with resulting reduction in the relative size of the gas bubble as compared with the filled portion of the stomach.

In the light of the above mentioned clinical symptoms and laboratory findings, the following explanation is given:

At the time of the ingestion of food the atonic stomach relaxes more than is required by the volume of food and the extra space is occupied by air which enters by way of the esophagus. The sense of weight, tightness and fullness coming on so promptly after a small amount of food, is due to a stretched atonic stomach.

With the beginning of peristalsis the sense of tension increases and the cardiac sphincter relaxes, with the eruption of gas, and a resulting sense of relief. Hence the patient's interpretation that gas on the stomach is the cause of all the associated disturbances, and since it occurs soon after eating, food is blamed for the gas and the diet is restricted unreasonably and eructation cultivated.

The cardiac and vasomotor symptoms, such as palpitation, irregularity, flushing and peculiar indescribable sensations in the head, may be either secondary to disturbance of gastric tone, or, more probably, both the gastric motor disturbance and the vasomotor symptoms are due to alterations in vagus and sympathetic co-ordination.

In this, as in any other condition, diagnosis is not only differential diagnosis, but likewise the recognition or exclusion of accompanying pathologic processes, whether related or not related to the major symptoms. Therefore, the diagnosis can only be made after a thorough history, physical examination and laboratory study. The diagnosis may be made when chronic disease of the abdominal organs is excluded and the above mentioned symptoms and findings are present.

The treatment is nearly the opposite of what is commonly employed. The diet should not be the usual soft or liquid diet, such as soup, broth, milk-toast, cereals, mush, and raw eggs.

Hydrochloric acid, pepsin, bismuth, salol, phenol, alkalis, purgatives and enemias are not indicated.

A diet applicable to the condition of the

stomach's function is a bland solid diet, as follows:

*To be omitted:*

Soups and broths, fish and shell-fish, raw fruits, raw vegetables, salads of every kind, veal, fresh pork, sweetbreads, tongue, liver, sausage, meat loaf, croquettes, hash, stews, creamed dishes, and game. No cabbage, corn, tomatoes, peas, beans, sweet potatoes, mushrooms. No melons, berries, preserved fruit, pineapple, cherries, candy or fancy cakes. No olives, pickles, caviar, sardines, cured fish, catsup, or sauces. No aerated or soft drinks, milk or buttermilk, wine or beer, home brew, chocolate or cocoa. No water ices, chocolate or fruit ice cream. Little salt, pepper or condiments.

*Allow only:*

Tender, rare beefsteak or roast; lamb chop or roast; boiled or baked ham; breakfast bacon; eggs—soft boiled, poached, scrambled, or plain omelet.

Vegetables allowed: Beets, salsify, egg plant, carrots, turnips, parsnips, string beans, pumpkin, squash, asparagus tips, beet greens, spinach, kale, mustard tops, cooked water cress, cauliflower, brussels sprouts, white potatoes, mashed or baked; bread: hard, crisp, well baked baker's bread, such as French rolls, Vienna rolls, well baked home-made bread, rolls or muffins; toast zwieback, plain crackers, noodles, macaroni and spaghetti without cheese; rice; well cooked, ground cereals. Butter, salted or unsalted; cottage cheese, vanilla or coffee cream, custards, jellies, cooked fruit, junket, plain puddings, plain cake, i. e., home-made pound cake, cup cake, plain cookies. Coffee, tea, water.

Belladonna is almost a specific. It acts at the neuro-muscular juncture, by abolishing excessive stimuli, reaching the digestive canal from the extrinsic nervous system, and so relaxes spasm and prevents inhibitory influences from outside the intestinal wall interfering within the effective action of the intrinsic neuro-muscular mechanism, the plexus of Auerbach and Meissner. It therefore tends to restore normal peristalsis, and does not perceptibly produce any undesirable effects, unless given in doses too large, and then the effects noticed are systemic, on the eye, nose and throat, and not on the digestive tract.

Intelligent, specific regulation of general hygiene is especially beneficial. This must be



adapted to the individual case. Moderate setting up exercises, night and morning, directed at the abdominal and thoracic muscles and the restoration of good posture and carriage are indicated. Walking, in moderation, is beneficial, but games, played to the point short of fatigue and associated with alternate periods of rest, are better than set gymnastic exercises. Mental hygiene is as important as diet, drugs, and physical exercise, but can be prescribed intelligently only after a searching inquiry into the habits, industrial, social and domestic.

1720 Connecticut Avenue, Northwest.

### A HUMAN MONSTER OF THE FOURTH WEEK.

By H. E. JORDAN, PH.D., University, Va.  
Laboratory of Histology and Embryology, University of Virginia.

This specimen was sent to the Laboratory of Histology and Embryology for diagnosis by Dr. Ruth Spottswood Mason (Mrs. Grigg), of Petersburg, Va. The material consisted of a partially collapsed, thin-walled, glistening vesicle approximately 15 mm. in diameter, including internally a closely attached small, opaque, irregular mass about 1 mm. in diameter (Fig. 1). Examination of the specimen



Fig. 1.—Drawing of the complete ovum. The thin-walled, transparent, chorionic vesicle is devoid of villi. Near the upper pole appears an opaque trilobed mass, the atrophic remnant of an embryo, approximately four weeks old. Twice natural size.

*in toto* revealed no features clearly suggestive of an embryo. Microscopical preparations were made by Dr. Elizabeth Cole. A study of the sections leaves no doubt that we are dealing with an embryonic monster (Figs. 3 to 6).

The character and completeness of the clinical history render this specimen of considerable interest. The patient menstruated normally December 23rd. About January 23rd she began to have pronounced morning nausea. During February breast changes were noticeable. On March 1st, after a long automobile ride, a small blood stain showed on her clothes. She remained in bed for two days. On March 15th there occurred a profuse painless hemor-

rhage, lasting about thirty minutes, in which the specimen was passed.

This embryo obviously dates its beginning from a time prior to January 23rd. Assum-

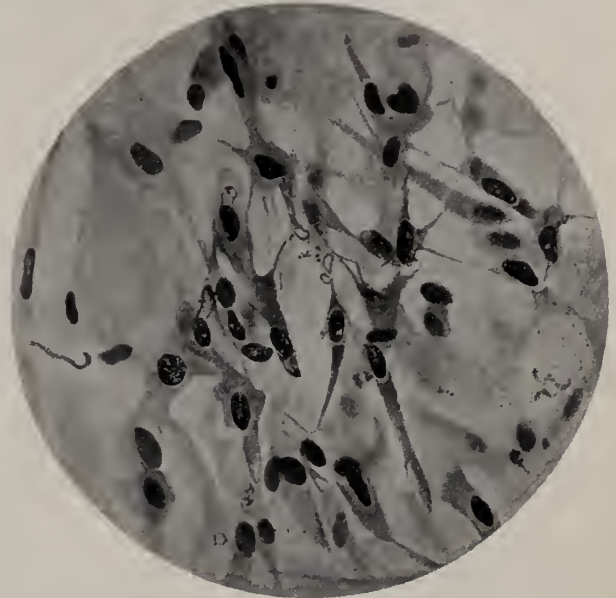


Fig. 2.—Drawing of a typical area of the chorion as seen in surface view. The tissue is beginning to show signs of slight dissociation. It consists exclusively of mesoderm.

ing that fertilization occurred about the tenth day after the last menstruation (January 2nd) this embryo has an absolute maximum age of approximately seventy-two days. On the assumption that fertilization occurred at the latest possible date prior to the suppressed menstruation the minimum age would be approximately fifty-four days. But even this age seems considerably in excess of the true age as judged from the sections. Assuming that the embryo died and began regression on March 1st when the initial hemorrhage occurred, the age would be approximately forty days. It seems clear from a study of the sections that the embryo had not attained even this developmental age prior to death. Since it contains a closed neural canal and a well developed notochord (Fig. 3), it must be older than the embryo Glaevecke of Von Spee which is estimated at twenty-two days. The size of the yolk stalk and of the allantois suggest a condition similar to the embryo Lr. of His, a specimen of about twenty-eight days. The size of the chorionic vesicle, assuming that it is expanded normally, suggests an age somewhere between the two embryos. All things considered, the embryo appears to have been about twenty-five days old when it entered re-

gressive stages. Atrophic changes therefore proceeded through a period of about thirty days.



Fig. 3.—Section through pharyngeal end of embryo. A portion of the chorion is shown below. The thin membrane overlying the embryo is portion of the amnion. The single-layered ectoderm is partially detached below at the right. The tissue is considerably macerated, including areas of complete disintegration. All lumens (spinal canal, pharynx, aorta and smaller blood vessels, heart, etc.) are more or less completely filled with disintegrating cells. The pedunculated mass below, at the left, may represent the heart. The central bilobed cavity is lined with dissociating columnar cells and represents the pharynx. The small, lightly-staining, circular area immediately dorsad represents the notochord. Peripherally, at the mid-point, appears the neural canal. The lining cells have filled the lumen, and the enveloping mesenchyme has suffered mucoid degeneration. The blood vessels contain disintegrating normoblasts. Magnified 100 diameters.

#### SUMMARY OF CLINICAL HISTORY.

Last menstruation—December 23rd.

Morning nausea—January 23rd.

Breast changes—February.

Blood stain (after long automobile ride)—March 1st.

Abortion (with profuse painless hemorrhage for 30 minutes)—March 15th.

Absolute Maximum age of ovum = 72 days.

Possible minimum age = 54 days.

Absolute minimum age = 40 days.

Age estimated from degree of development = 25 days

Duration of atrophic change = Ca. 30 days.

The history suggests the gradual operation of a morbid factor. Identification of this factor would supply the cause of this type of monster. Lesser degrees of expression of the etiologic factor would correspond roughly with successively lesser degrees of monstrosity and successively older abortuses, ending with viable monsters. The process may include a growth inhibiting effect of the causal factor. No doubt the embryo is more or less retarded in its development relative to its actual age. It may be dwarfed as well as monstrous. Mall<sup>1</sup> describes an embryo with a menstrual age of



Fig. 4.—Section of the embryo in the region of the yolk stalk. The mesenchyme has suffered less dissociation at this level. The larger cavity represents the gastro-intestinal tract at the level of communication with the yolk sac. The embryo is distorted and evidently shrunken; in consequence the lining of the intestine has become extensively folded. The intraembryonic portion is lined with tall columnar cells; the broken remnant of the yolk sac (at right) with cuboidal cells. A small amount of smooth muscle is seen. Magnification 100 diameters.

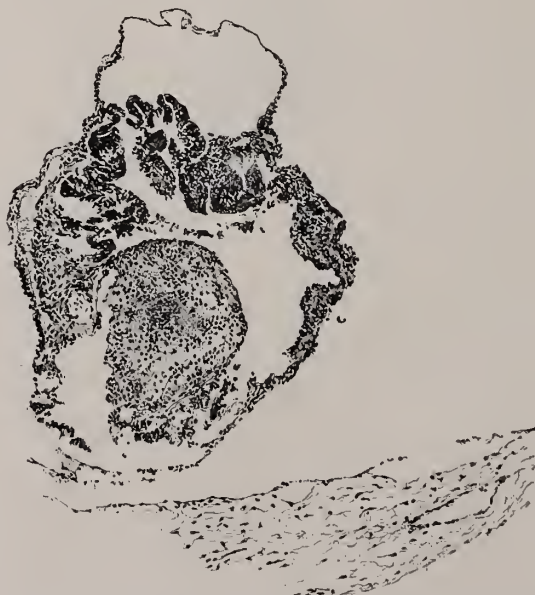


Fig. 5.—Section through the caudal end of the embryo, close to the area of attachment to chorion. The central solid mass represents the embryonic end of the umbilical cord. The blood vessel (circular in section) at the left represents the umbilical artery. Note the blood vessels in the chorion at this level. The thin membrane at the upper pole represents the amnion. The central portion of the section, with the folded wall of tall columnar cells, represents the proximal end of the yolk sac. Magnification 100 diameters.



three months and a developmental age of three weeks. Taking these considerations into account, this embryo may be actually about eight weeks old, while developmentally only four weeks old. On this assumption, placental separation and consequent intraembryonic tissue changes may have been of only fifteen days' duration, the interval of time between the first sign of bleeding on March 1st and the abortion on March 15th. According to Mall,<sup>1</sup>

gives no history of dysmenorrhea or vaginal discharge. Vaginal examination revealed no structural abnormality. Notwithstanding this history, fifteen months intervened between marriage and conception. With this as a clue, a mild endometrial inflammatory condition may be suspected.

The monstrous embryo here described has attained a degree of development comparable with a normal stage of about the twenty-fifth



Fig. 6.—Section through the region of the umbilicus, showing the connection between the short body stalk and the chorion. The body stalk contains an entoderm-lined duct, the allantois. The similar duct above represents the yolk stalk. Magnification 100 diameters.

detachment of a normal ovum for a much shorter time even than seven days is sufficient to cause an embryo to become monstrous.

Since the chorionic vesicle lacks villi it may be inferred that the locus of the initial morbid factor was extra-ovular, presumably endometrial. Such disturbance of the nutritive mechanism supplies sufficient cause for the stunting, malformation and partial disintegration of the embryo. In the search for the possible explanation of the disturbed nutritive conditions, the history of the parents becomes of prime importance. However, this history yields nothing to account for the presumably faulty implantation of the monstrous ovum. Both parents have given repeatedly negative Wassermanns. Children were desired, and contraception was not practiced. The woman

day. It is characterized by a bizarre trilobed shape, local necrosis, and considerable tissue dissociation. Its pathologic chorionic sac lacks villi and ectoderm. The embryo may have been retained an unusually long time after its death due to an unknown cause. The monstrous condition of the embryo may be interpreted as the result of "faulty implantation" (Mall), supporting an inadequate nutrition eventually leading to death. The unknown initial factor in the production of this monstrous embryo and its abortion presumably resided in some undiscovered pathology of the uterus or tubes.

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1. A Study of the Causes Underlying the Origin of Human Monsters. *Jour. Morph.*, Vol. 19, 1908.

**VINCENT'S GINGIVITIS.\***

By A. M. SHOWALTER, M. D., Christiansburg, Va.

During the past year we have been very much impressed by the frequency of positive reports from the laboratory on smears from gums for Vincent's organisms. We are, therefore, adopting a laboratory examination of the gums as a routine procedure on all patients entering the hospital and of all the dental patients of Dr. P. L. Snuffer.

In this paper we do not wish to question the etiology of so-called "trench mouth"; however, it is well to bear in mind that at the present time it has not been definitely proven that the fusiform bacillus and spirillum of Vincent is the sole cause. Our temporary conclusions are based on our first 100 routine examinations, excluding cases that applied to us for treatment for sore, bleeding gums, etc. The smears we obtain are usually from both the incisor and molar areas and are stained with carbol fuchsin or gentian violet.

In the first 100 examinations 76 per cent showed the presence of both the fusiform bacillus and spirillum of Vincent. In 6 per cent the bacillus without the spirillum was found. In 35 per cent the Vincent's organisms were predominating. Twenty-five per cent had some clinical symptoms, such as bleeding or eroded gums. The remaining 10 per cent of the ones in which the Vincent's organism was predominating at the time the smear was taken had no clinical evidence of diseased gums. A few, however, gave a past history of sore and bleeding gums. In cases where the Vincent's organisms were not predominating a negative diagnosis was made; however, in about 10 per cent of these, the gums were clinically suspicious of "trench mouth".

To us these reports have been both surprising and startling. It brings us at once to the questions as to when it is necessary to institute treatment and when it is safe to allow cases to go untreated. So far we have treated only cases that were clinically positive, and, owing to no symptoms, a few of these patients have refused treatment. However, we are attempting to watch more closely over a long period of time the progress of the untreated cases in which the laboratory report was positive. Bloodgood reported in 1927 that Vincent's angina is markedly on the increase. The same year, Oadham and others reported

likewise. It is true that there has been a "trench mouth" scare in our community during the past spring and summer, which may account for our abnormally high positive findings. Again, it might be mentioned that the majority of our patients are farmers, miners, etc., and as a rule practice very little oral hygiene. Even after taking this into consideration we are inclined to agree that it is on the increase and at an alarming rate. While the chronic cases seldom present direct symptoms severe enough to bring the patient to his physician for this alone, the end results of ill health, loss of teeth, etc., make it a responsibility to the physician to include a careful examination of the gums in all patients, and where a positive diagnosis is made to at least warn them of the tragic end results.

Many authors claim that Vincent's organisms are present in a non-pathogenic form in the mouth and genitalia of the majority of individuals. And our findings would seem to bear this out. In view of the frequent positive laboratory findings in cases where the clinical symptoms would not lead us to suspect "trench mouth", we naturally bring up the question of when and why they become pathogenic.

Certainly a lax oral hygiene predisposes to an attack; however, quite a few of our cases have been in patients who were extremely careful in regard to brushing their teeth, etc. Chronic, debilitating diseases have also seemed to lower a patient's resistance to the infection, and we have had two operative cases during the past six months who developed an acute form within the first week following operation.

Numerous treatments have been reported to be successful, chief among them being the arsenicals. Our present line of treatment which is so far the most successful we have employed is a solution of wine of ipecac, glycerine, and Fowler's solution, applied directly to the gums twice a day, a mouth wash of sodium perborate twice daily, and some form of arsenic either sub-cutaneously or intravenously about twice a week.

The local applications are used often enough to clear up the immediate symptoms; however, we find that unless these are carried out in conjunction with systemic treatments there is almost always a recurrence of the symptoms. Occasionally a 10 per cent solution of

\*Read before the Southwestern Virginia Medical Society, at Wytheville, Va., September 27-28, 1928.



neo-silvol, either in water or glycerine, is applied locally to the gums.

#### CONCLUSIONS

1st.—Vincent's gingivitis is markedly on the increase.

2nd.—In the chronic form the symptoms are so mild as to often be overlooked by both patient and physician.

3rd.—More research work is necessary to determine both the predisposing and exciting causes.

*New Altamont Hospital.*

### SALIVARY CALCULUS.

#### A Case Report.

By J. B. H. WARING, M. D., Cincinnati, O.

Salivary concretions of various sizes at times form in the parotid gland and Stenson's duct; but a majority of such calculi are found in Wharton's duct, leading from the maxillary gland. Stenson's duct opening from the parotid is opposite the second molar of the upper jaw; while Wharton's duct opens under the tongue and frenum. Both openings may be entered with a probe or fine needle, for diagnostic or therapeutic purposes.

Where the parotid is involved, inflammation and enlargement of the gland may take place, with retention of saliva.

Klebs and Waldeyer assert that masses of micro-organisms are the chief etiological factor in formation of salivary calculi, with deposition of the phosphates and carbonates of lime, magnesia, soda, etc., to gradually form calculi. Stones as large as eggs have been reported; at times multiple, and occasionally faceted. A majority of these calculi are somewhat milk white in appearance; friable, and often capable of being crushed between the fingers. Where inflammatory reaction proceeds to abscess formation, a spontaneous rupture with evacuation of contents may take place, a salivary fistula being the end result.

The condition undoubtedly develops far oftener than the average physician would suspect; and unless marked inflammatory reaction develops, is often unrecognized. Calculi may remain small and silent for long periods of time, or the ducts may rupture, with evacuation of contents unrecognized as such by the patient. While surgical intervention is uncomplicated, as a rule, an occasional case may cause trouble. In a case seen by us in New York several years ago, a calculus in Whar-

ton's duct was recognized upon roentgenogram of the jaw for other purposes; and easily removed under local anesthesia. A deep-seated cellulitis of the cervical tissues followed, however, and for several days it appeared a fatal issue would be the outcome. The calculus in this case was small, irregular in shape, milk white in color and so friable as to be easily crushed between the fingers.

#### CASE REPORT

C. G., a farmer, aged 57 years, consulted us for a "lump in his throat", which was sore at times, and made swallowing difficult when sore. No swelling was observable externally; but upon intra-oral digital examination under the patient's guidance, a hard mass was easily felt on the right side of the floor of mouth between the tongue and maxilla. This was roughly somewhat larger than a pigeon's egg, apparently smooth, and only painful on deep pressure. No fluctuation was detected. X-ray was advised, but discouraged by patient from financial reasons.

Previous history was negative, except that patient stated that about twenty-five years previously the whole right side of his face and tongue swelled up, becoming hard and painful. After about ten days, the inflammation gradually subsided. His physician was of the opinion the salivary duct was stopped up; while a dentist thought a tooth was causing the trouble. Being prior to the Roentgen ray era in the rural districts, no further study of the case seems to have been made, as the trouble seemed to be abating under such measures as his doctor applied. At intervals since this initial attack, patient reports his neck and side of face would swell up and become painful, but mildly in comparison with his first experience, and these attacks seemed to be controlled by liberal application of tincture of iodine.

About three years ago, however, patient reports that the lump in his mouth began to get noticeably larger; hurt him considerably at times; and was more or less tender on pressure all the time. No further consultation of his physician seems to have been secured. Only lately has patient noticed difficulty in swallowing; but two or three days before coming in, patient states that the lump in his throat seemed so large and sore that he had more difficulty than ever in swallowing.

After surface anesthesia of the oral mucous membrane over the mass, and careful digital

examination, a tentative diagnosis of salivary calculus was made. This was confirmed when the needle of a novocain-filled syringe was carefully thrust into the swelling, for purposes of infiltration anesthesia. By pressure externally under the jaw, the mass was prominently thrust up into floor of mouth, an incision made over same, and the calculus delivered with forceps. This was perfectly smooth to the touch; but yet was a dark brownish red mottled color over its larger end, shading towards a lighter mottling at its apex. This mottling was so pronounced as to give the calculus a mulberry-like appearance all over. In general size it was as large as a pigeon's egg, but not so symmetrical in outline. Unlike so many salivary calculi, it was very hard, and in place of a milky white bluish tinge often met with, was a dark mottled red. Superficially the calculus

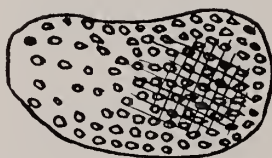


Fig. 1.—Approximate size and shape of salivary calculus.

resembled certain forms of vesical calculi far more than it did a salivary concretion.

Aside from its size, shape and color, the interesting clinical feature of this calculus was its tolerance by the tissues over a period of some twenty-five years and its comparatively slow growth. Why this prolonged irritation and repeated inflammatory reactions did not eventuate in a malignancy is difficult to understand.

Recovery was entirely without incident. The pocket left by the calculus was swabbed out with mercurochrome solution; kept clean of food particles; and an antiseptic mouth wash prescribed. Otherwise, it was left to itself.

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Sajou's Cyclopedia of Medicine, Vol. V, pp. 519-520.  
7 East McMillan Street.

Do, whatever task you have to do, to the best of your ability. It is almost certain that the other fellow is doing his level best.

## AN ADDRESS ON PRESENTING THE PORTRAIT OF DR. ISRAEL BROWN— AS A GIFT FROM MISS RACHEL BROWN— TO THE NORFOLK COUNTY MEDICAL SOCIETY.\*

By NATHANIEL T. GREEN, Norfolk, Va.  
Attorney at Law.

MR. PRESIDENT AND MEMBERS OF THE NORFOLK COUNTY MEDICAL SOCIETY:

On such an occasion as this it is not to be expected that the speaker will tell his audience the life history of the man whose portrait is to be presented to you. Most of that life-history—certainly the adult and important portion of it—was spent among you: and you, as members of the same profession with him, know more of his daily walk and work through that period than can possibly be related to you by an outsider in such a space of time as I can here and now reasonably consume. So, my audience need not look for any attempt to tell Dr. Brown's career in what I have to say this evening. That career was too active, too various, and too full to admit of being portrayed justly in an address of this kind.

Again, this may be positively asserted as a characteristic of Dr. Brown—that he disliked to hear fulsome and indelicate praise of himself from others. By nature, modest and retiring, he preferred the satisfaction that comes from the inner consciousness of work well done and duty performed rather than the oral utterances of laudation and flattery which not infrequently caused him to blush with embarrassment and confusion. And so, if he could be consulted now, he would desire, I am sure, that I indulge in no undue eulogy and adulation of him. And what he did not like when he was alive, I will not presume to offer, now that he is no longer with us.

But Israel Brown's life on earth was of a kind that invites an investigation of those mental and moral attributes that made of him a man of character and ability, for in these attributes there will be found qualities not only to inspire but to be emulated by physicians, by soldiers, by officeholders, and by men in every walk of life. And it is of these attributes, which I came to know from a close and intimate association of a decade with him, that I shall talk to you tonight.

John Ruskin, in one of his most eloquent essays—that one on "Work"—divides work

\*Address delivered before the Norfolk County Medical Society at a Memorial Meeting, May 6, 1929.



into two kinds: "Wise work and foolish work" and the difference between the two, as he puts it, is the "difference between sense and nonsense in our daily occupation." And he goes on to tell us what wise work is: "Observe, then," he writes, "all wise work is mainly threefold in character. It is honest, useful and cheerful." That essay has been for many years a favorite with me, and I had not known Israel Brown long before I placed him in my mind as a man of whom Ruskin would declare he did wise work in his life, that is, work that was honest, useful and cheerful. And the longer I knew him the more convinced I was that I had given Dr. Brown the proper place, in this, my idea of him.

There was no pretense about Dr. Brown; his was not the nature to shirk or slur over any task that fell to his lot: he looked the facts of every situation squarely in the face and set to work to meet them like a man; he went honestly to work to cope with those facts as efficiently as he could, and there was no temporizing, no shutting of his eyes, no deceiving himself as to what really confronted him. And this was true no matter what the nature of the work: Whether as a physician he attended some poverty-stricken patient suffering from the agonies of carcinoma or some other fell disease; or whether as an army surgeon he saw too plainly the result to some boy of a wound from the fire and missiles of the enemy; or whether in political life he saw some unworthy and injurious piece of legislation about to be enacted; or whether as a member of the school board he saw something amiss about to be accomplished; or whether as a member or State Commander of the American Legion, he was seeking to promote the welfare of disabled veterans; or whether as a member of your society or of the State society, or as one of a committee of these, he perceived anything to be as it ought not to be. In all these various spheres of life, Dr. Brown always presented this same characteristic of meeting the question face to face and solving it, if it could be solved, by direct and open action. Throughout his entire life Israel Brown was doing honest work in an honest, upright way. It cannot be doubted, therefore, I think, that Israel Brown's work in life was in part wise work because it was honest work.

But this life work of Dr. Brown was not only honest work, it was useful work. And in the essay from which I have quoted, Ruskin

tells us: "Then, secondly, wise work is *useful*. No man minds, or ought to mind, its being hard, if it only comes to something: but when it is hard, and comes to nothing; when all our bees' business turns to spiders'; and for honeycomb we have only resultant cobweb, blown away by the next breeze—that is the cruel thing for the worker." No one ever heard of Dr. Brown's complaining that his work was hard; and work was never a cruel thing to him. The reason for this, as Ruskin points out, was that Dr. Brown's life work was useful work; it was work that came to something. It came to this, in Dr. Brown's work as a physician, it relieved often and over again the ills of the body accentuated by the ills of poverty, and it carried hope and often safety to people in despair and disconsolate. His main work in life was, of course, in that sphere, but the work he did in any capacity that was designated for him was always useful work. Even as a member of any committee of your society to which he had been appointed, Dr. Brown always did more than his part, and what he did was always helpful and useful. For several years prior to his death, Dr. Brown had been intensely interested in the library of this society; he was on the alert to discover old and rare medical works for it, and he was particularly keen to gather all he could relative to any former physician who had in times long gone practiced in this vicinity. He wished that library to contain not only the new but the old, so that members could see the great changes that the new had wrought by viewing the old—in other words to have at their hands the history of medicine. It is gratifying to know, in view of this interest of his later years, that you are to place the picture I am about to present you in your library. In every sphere of life, then, we may say that Dr. Brown's work was useful work and to that extent also was wise work.

And, finally, my friends, I think we may say, without the fear of cavil or contradiction, that Dr. Brown's work in life was cheerful work, that is, that he did what he had to do cheerfully. If ever there was a cheery man among men, Dr. Brown was he. His face fairly beamed with cheer and good-will—not an empty unmeaning smile and a forced twinkle in the eyes, but a smile and twinkle that radiated from an honest nature ready always to do what it could to help any good cause on

its way, or to benefit his fellow-men. Ruskin compares the nature of the cheerful worker to that of a child "being full of love to every creature, it is happy always, whether in its play or in its duty." And he goes on in eloquence scarcely ever excelled: "Well, that's the greatest worker's character also. Taking no thought for the morrow; taking thought only of the duty of the day; trusting somebody else to take care of tomorrow; knowing indeed what labor is, but not what sorrow is, and always ready for play—beautiful play—for lovely human play is like the play of the Sun. There's a worker for you. He, steady to his time, is set as a strong man to run his course. See how he plays in the morning with the mists below and the clouds above, with a ray here and a flash there and a shower of jewels everywhere; that's the Sun's play; and great human play is like his—all various—all full of light and life, and tender as the dew of the morning." I like to recall my departed friend with this language in my mind. He was steady as a strong man to his work, but he was always in the intervals scattering a ray here and a flash there of the cheerfulness which was a part of his nature.

My friends, Dr. Brown did in his life-time that wise work that Ruskin defines as "work that is honest, useful and cheerful," and this is a goal that every man can set before him as worthy of a high ambition. To that goal he attained.

There was another quality of our friend's character that cannot be passed over in silence: That was an entire absence of any mercenary motive in any work he ever undertook. Dr. Brown did not hate—for he never hated,—but he did not admire those features of professional life in which the fee played the first part. He did not admire the many little tricks and devices by which occasional professional men seek to increase their practice. He scorned to stoop to these. And as he grew older, the less he thought of the habit of accumulating money. He was spending what he had, and that was no large amount—in fact, a mere bagatelle to what it would have been had he devoted his professional life to money-making. All this is in keeping with the character of those who do the wise work in this life of ours. Listen once again to Ruskin on this subject:

"There will be always a number of men who would fain set themselves to the accumulation of wealth as the sole object of their lives.

Necessarily, that class of men is an uneducated class, inferior in intellect, and more or less cowardly. It is physically impossible for a well-educated, intellectual, or brave man to make money the chief object of his thoughts; as physically impossible as it is for him to make his dinner the principal object of them. All healthy people like their dinners, but their dinner is not the main object of their lives. So all healthily-minded people like making money—ought to like it, and to enjoy the sensation of winning it; but the main object of their life is not money; it is something better than money. A good soldier, for instance, mainly wishes to do his fighting well. He is glad of his pay—very properly so, and justly grumbles when you keep him ten years without it,—still his main notion of life is to win battles, not to be paid for winning them. So of clergymen. They like pew rents, and baptismal fees, of course; but yet, if they are brave and well educated, the pew rent is not the sole object of their lives, and the baptismal fee is not the sole purpose of baptism; the clergyman's object is essentially to baptize and preach, not to be paid for preaching. So of doctors. They like fees no doubt,—ought to like them; yet, if they are brave and well educated, the entire object of their lives is not fees. They, on the whole, desire to cure the sick; and, if they are good doctors, and the choice were fairly put to them, would rather cure their patient, and lose their fee, than kill him, and get it. And so with all other brave and rightly trained men; their work is first, their fee second—very important always, but still *second*. And this is no small distinction. It is the whole distinction in a man." Dr. Brown's work was never mixed with any idea or thought of what his pecuniary remuneration for it might be. His work came first and his fee was not even second.

Dr. Brown had a faculty for friendship. He made friends readily and he kept them steadfast. This was due to his friendliness and sincerity. He could not, even in political life, dissemble. If he kept silent on a subject because there was no duty on him to express an opinion on it, yet the play of his features and the expression on his face at once disclosed where he stood and what his views were. This transparent honesty was his chief political asset. No pressure of personal influence ever budged him a hair's breadth from convictions he had formed after deliberately



considering a matter. And he knew enough of human nature and of the wiles and ways of men not to be beguiled or fooled into unjustifiable and wrong positions on any public questions. In one respect there was a great difference in the political views of Dr. Brown and myself. He believed, and I did not, in what is generally termed humanitarian and uplift legislation, and that it was a duty of the State to go as far as its pecuniary resources would allow in that direction. This difference was no doubt due in part to what Dr. Brown had seen of life in his capacity as a physician and to his desire to elevate his fellow men. He may have been right and doubtless I was wrong; at any rate, he was with the forces of what is termed progress, and I, if not an antique, was antiquated in the matter. I believe, indeed, that I may assert that all real physicians have now become by training and experience humanitarians, and this even to the diminishing of their professional income.

And so, in every relation of life, it will be found that Dr. Brown's characteristics were the same. He was not only honest in the ordinary sense of that word, but he possessed a higher integrity than that, for he was intellectually honest; he not only was not led astray by the arguments and persuasions of others, but he never persuaded himself by specious excuses and false logic from the conclusion of his own sound judgment. The work he did in life was, therefore, necessarily honest and honorable work. His was again a highly practicable mind and he rarely indulged in mere speculative and academic discussions. He met with enough concrete questions in his daily life to give him more than a plenty for hard thought, and he devoted his mind to the solution of those questions that so continuously arose. The consequence was that those thoughts of his assumed quickly the form of actions and thus became useful and serviceable to his fellow men. And so his work was useful work. And, again, Dr. Brown loved his work and as he was by nature of a disposition far removed from the morose, he did what he had before him cheerfully and willingly. In fine, Dr. Brown worked with real wisdom in this world of ours.

It is the likeness of this man—the features and lineaments of his kindly and candid face clearly reproduced—that I present to this Society—of which he was formerly President—

as a gift from his sister, Miss Rachel Brown. It has not been an irksome or disagreeable, but, on the contrary, a pleasing, undertaking to me to act for her in formally presenting it to you. I am proud that I should have been selected for that purpose—a pride increased by the fact that a former President of your Society informs me that Dr. Brown himself not long before his death said to him that in that event he wished me to say something to this Society relative to the manner of man he was. An acquaintance and intimacy with Israel Brown was helpful to every man who enjoyed it; he shattered the cynical in many a man by demonstrating in his own life and character how much of goodness, benevolence, and charity there was in human nature, and he did this without knowing it.

He was an honor to the medical profession, a soldier at his country's call, a legislator of unblemished integrity, but above and beyond all these he was, like Ben Ahdem, "one who loved his fellow man."

Mr. President and Members of the Norfolk County Medical Society, acting for Miss Rachel Brown, I present you this portrait of her beloved brother, Dr. Israel Brown.

### AN ADDRESS ON PRESENTING THE PORTRAIT OF DR. EDWARD EVERARD FEILD TO THE NORFOLK COUNTY MEDICAL SOCIETY.\*

By EDMUND S. RUFFIN, JR., Norfolk, Va.  
Attorney at Law.

LADIES AND GENTLEMEN AND MEMBERS OF THE  
NORFOLK COUNTY MEDICAL SOCIETY:

I am sorry that the honor which has devolved on me tonight in presenting to this Society a portrait of Dr. Edward Everard Feild, did not come to someone more competent than I, as I never knew Doctor Feild until his latter days, and I do consider that I am greatly honored by this occasion, because I liked and admired Doctor Feild very much.

Edward Everard Feild was born on April 11, 1855, at the old Wyatt Homestead, called "Walnut Grove," in Greensville County, Virginia. He was the fifth child of George Wythe Feild and Anne Wyatt Feild. On his father's side he was of Welch ancestry. His great grandfather, Richard Feild, was a surgeon in the Revolutionary Army. On his mother's side, he was a lineal descendant of Sir Francis Wyatt, one of the early Governors of Vir-

\*Address delivered before the Norfolk County Medical Society at a Memorial Meeting, May 6, 1929.

ginia. He was related to George Wythe, George Keith Taylor, the Bollings, Meades, Randolphs, Stiths and other prominent families of Virginia. He was also descended from Sir Richard Everard, one of the Colonial Governors of North Carolina. Through the Rolfes and Westwoods he was descended from Pocahontas.

His boyhood was spent at home and his early education was received at a little log school house five miles away, conducted by Mr. Samuel Hardy. He then attended the private school of R. M. Carey, in Petersburg, and later went to the Pine Grove Academy, at Greenville, Virginia. In 1878, he entered the University of Virginia and graduated in 1879 with the degree of M. D.

Upon leaving the University of Virginia, he began the practice of his profession at Hicksford, now Emporia, Virginia, where he spent four years, associated with Doctor Edmund Mason, after which he came to Norfolk, and spent the remainder of his life here.

Doctor Feild had a long and distinguished career in Norfolk. He was an active practitioner here for more than forty years, and during that time he held numerous positions of importance. He was for years the State Quarantine Medical Officer of the Port of Norfolk. He was also Acting Assistant Surgeon in the U. S. Marine Hospital Service, now called the U. S. Public Health Service. He was at one time President of the old Norfolk Board of Health, and this was the only political office he ever held. He was also the Surgeon for the British Vice-Consulate, at Norfolk.

Immediately after his arrival in Norfolk, Dr. Feild associated himself with St. Vincent's Hospital, and became a member of its staff, and served as such for over forty years. He assisted in the formation of the Clinic there and was head of the Surgical Department. He was devoted to this institution and was always active in its charity work.

The first operation for appendicitis performed in Norfolk was done by Dr. Feild, at St. Vincent's Hospital. In 1894 he was awarded the Hunter McGuire Prize for an Essay on Appendicitis. He also wrote a number of papers on various medical subjects. Dr. Feild was considered a master in operations for hernia. In his later life he took post-graduate work in Orthopedics, at Boston, and specialized in that branch of the medical

science until he was incapacitated from practice by a stroke of paralysis. He retired from active practice about four years before his death, and he died at St. Vincent's Hospital May 30, 1928. He never married.

Dr. Feild took a prominent part in many of the organizations of the medical profession. He was a member of the Norfolk County Medical Society (this distinguished and honorable body), of which he was at one time president. He was also a member of the Medical Society of Virginia, the Seaboard Medical Association, the American Medical Association, and of the American College of Surgeons. He was also elected a member of A. A. A., the honorary medical fraternity, by the University of Virginia Chapter in 1922.

Although Dr. Feild graduated from college in medicine half a century ago, yet he kept up with the tremendous advance which this science has made.

Dr. Feild's attainments were not confined to the medical profession only. He was a cultured, refined and educated gentleman. He enjoyed immensely the society of his friends and he belonged to many social organizations. He was a member of the Old Virginia Club, Norfolk Boat Club, Norfolk Gun Club, Norfolk Country Club, and Atlantic Club of Virginia Beach. He was a Mason, belonging to Owen Lodge, of which he was Past Master (1891-2). He was a devoted member of St. Paul's Church, and at one time a vestryman.

He loved music, painting and literature. He was an inveterate reader. He was a good conservationist, and quite witty, and therefore a delightful companion.

The picture which I have the honor of presenting to you tonight, in behalf of his niece, Miss Annie Feild, is an enlargement of an old photograph which appeared in a publication called "The University of Va.," Vol. II, page 135, published in 1904, of which Dr. Paul Barringer, Jas. Mercer Garnett and Rosewell Page were the editors. Dr. White found a copy of this work in an old book shop here, and we borrowed it and had the photographer photograph the picture and then make an enlargement of it. This was the only means available for securing this picture and I judge it represents Dr. Feild as he looked about twenty-five years ago.

I think I would be remiss if I should close without stressing the unselfishness and charitableness of Dr. Feild. Money was no object



in his life, nor did any man's wealth or poverty influence him. His greatest joy was in rendering service to those who needed it. Doubtless there are some present here tonight who will remember encouragement, sympathy, and real assistance given them by Dr. Feild when they were beginning life as young doctors.

## Correspondence

### Dr. Williams Discusses Attitude of State Department of Health to Curative Clinics.

The following is the copy of a letter recently written by State Health Commissioner, Dr. Ennion G. Williams, and it is published here for information of physicians of the State in general.

May 9, 1929.

*To the Members of the Otolaryngological and Ophthalmological Society of Virginia:*

On April 23rd I addressed to your society a letter which was read at your recent meeting. Since some of the members of the society were absent, I am sending to each member this communication which embodies the substance of my letter to the society.

Inspections of our school children have for years been revealing conditions calling for a remedy. Our representatives requested your society to formulate a system under which those conditions could be remedied; and we are grateful to you for doing so. However, when we began to realize our definite responsibility under your resolution, we hesitated and determined to give more careful consideration to the subject.

In public health work we have to consider the rights and the duties of three classes—the public, the medical profession, the State as represented by its health department. There are certain lines of preventive work which the public has the right to demand from the paid health workers, there are other lines in which the officials should, at the most, be intermediaries between the profession and the public. The medical profession has rights which health departments must respect; and one of these rights is to get fair pay for all private service rendered. For the State to assume control over the compensation to be paid to the doctors is a step toward the rendition of private

service through public agencies. This is so-called State medicine, something all of us wish to avoid.

It is curious, but nevertheless true, that a health department which acts as an intermediary is subjected to the criticism of profession and of public. The doctors think, and not without reason, that we endeavor to keep their fees to a minimum. We have to do that if we are to get the work done on such a scale as to justify our taking any interest in it from a public health standpoint; yet it is questionable whether we are justified in so doing. We do not undertake such services in connection with diabetes or cancer or heart disease; and I do not believe that any doctor would seriously suggest that we should. Then why should we do this for nose and throat troubles, which are not communicable but strictly personal? On the other hand, the public with far less reason but more loudly condemns us for conducting our health work in the interest of the doctors.

We believe that this work should be done. We have not changed our opinion in that respect but we believe it should be done through some mutual arrangement between family doctor and specialist when a small number are involved or between the local medical society and the specialist when there is a larger number. If the local doctors wish the help of our field nurses, such help will be given; but this is, we think, just as far as we should go in assuming any responsibility.

At more than one meeting of the Medical Society of Virginia, the writer has discussed the legitimate boundaries of public health activities, but he has never considered that the holding of curative clinics has fallen within the category of the legitimate. We are anxious to afford a measure of relief to children handicapped by remedial troubles and yet who are distant from those specialists qualified to give relief; but we think that the extent of our efforts for assistance is to give our moral support to those who are able to give tangible aid and not to assume responsibility for such service unless specifically requested and advised to do so by the organized profession.

I trust that you will understand our position and will not think us ungrateful.

Very sincerely,

ENNION G. WILLIAMS, M. D.

*State Health Commissioner.*

## Woman's Auxiliary, to the Medical Society of Va.

### A Letter to the County Chairmen of Health Education:

It is hoped that each County Chairman of Health Education will make a thorough study of the health conditions in her city or county, and that there will be a good report for the next State meeting.

Every community must have an official scientific Health Department, and the Auxiliary's first, and most important work, is to secure such a department where it does not already exist. If there is an official department with full time trained workers, lay organizations, like ours, should cooperate and be willing to take advice from them.

To study the different phases of health work I would suggest the forming of the following committees:

1st; a Committee to study the Health Department and the conditions in the County. Go to the Health Officer and offer the services of the Auxiliary to do any work he deems best.

2nd; a Committee to study the milk and water situation.

3rd; Tuberculous Education; to see that the really dangerous advanced cases are being properly taken care of, and are not spreading the disease in our homes through servants and others. Does your County give these cases hospital care? Insist upon having outdoor school rooms, and rest periods during hours for tuberculous children. Teach them the proper way of living.

4th; Cancer Control: "The American Society for the Control of Cancer has asked the Auxiliary to assist in this work. Learn who is the Medical Chairman of this work in your County. Appoint a Committee (who can talk), send for literature, study the work, and bring it to your own Auxiliary. Educate them first—and send them to clubs and other organizations.

5th; Child Welfare: have this Committee find out how the work is conducted in your County, and how the Shepherd-Towner money has been spent. The Shepherd-Towner Bill and the Newton Bill provides for "Child Welfare and other services," which means that

this money may be used for anything, and under the Department of Labor. There is a more recent bill which places this money under the Department of Public Health, which is what the A. M. A. wants. The Auxiliary should cooperate with the Board of "Health Division of Hygiene" by promoting "May Day," and assisting with the pre-school child health examination, directing our efforts toward sending children to their own family physicians for examination instead of to clinics. Doctor's wives, as members of the Parent-Teachers Association, can influence mothers to have all defects corrected before school begins.

6th; organize Study Clubs and Health Education programs for the benefit of Auxiliary members and other women, to encourage annual examinations to detect and check signs of disease.

7th; a Committee to provide "Health Programs" for Woman's Clubs and other organizations. (These will be sent you on application to the A. M. A. Office in Chicago.)

If there is any way that I can assist, please call on me.

Faithfully,

ALICE LEIGH,  
(Mrs. Southgate Leigh.)

Chairman Health Education, Woman's Auxiliary to the Medical Society of Virginia.

The card party, sponsored by the Woman's Auxiliary to the Richmond Academy of Medicine was a big success in spite of the unfavorable weather.

It was planned to be given on the lawn, at "Beaumont," the home of Mrs. Stuart Michaux, president of the auxiliary, but on account of rain it was postponed until June 3rd. Due to weather conditions, it was held at the Mosque Theatre.

Much credit was due Mrs. N. T. Emmett and Mrs. W. T. Sanger, who had charge of the tables, Mrs. Armistead Gills, chairman of refreshments, and Mrs. Joseph Bear, of prizes. The auxiliary wishes to extend thanks to them and to all who assisted in making the party so enjoyable for all present.

The money realized from the affair will be used in securing the much needed linen and clothing for the Dooley and St. Phillip's Hospitals. This work has recently been assumed by the auxiliary, and much interest and enthusiasm has been shown.



It is sincerely hoped that with this objective, our organization will grow and realize its usefulness and importance.

## The Truth About Medicine

In addition to the articles enumerated in our letter of March 30th, the following have been accepted: Abbott Laboratories

Bismarsen

Ciba Co., Inc.

Digifoline-Ciba

Digifoline—Ciba Liquid

Ampules Digifoline—Ciba Solution, 1 cc.

Ampules Digifoline—Ciba Solution, 5 cc.

Tablet Digifoline—Ciba

Parke, Davis & Co.

Diphtheria Toxoid

E. R. Squibb & Sons

Insulin—Squibb, 80 units, 10 cc.

Winthrop Chemical Co., Inc.

Tablets Theocin Soluble, 2½ grains

### NEW AND NONOFFICIAL REMEDIES

Lenigallol.—Triacetylpyrogallol.—Lenigallol is said to be nonpoisonous and nonirritating, but it produces a mild and painless corrosive effect by the gradual liberation of pyrogallol. It is used as a substitute for pyrogallol in psoriasis, lupus, acute and subacute eczema of children and other skin diseases. E. Bilhuber, Inc., New York.

Solution Bismuth Sodium Tartrate—Searle, 1-5 per cent.—An aqueous solution containing bismuth sodium tartrate—Searle (Jour. A. M. A., June 30, 1928, p. 2103) 0.015 Gm., benzyl alcohol 0.02 Gm., and sucrose 0.25 Gm., in one c.c. G. D. Searle & Co., Chicago. (Jour. A. M. A., April 6, 1929, p. 1181.)

Magnesia-Mineral Oil (25) Haley.—A mixture composed of liquid petrolatum, U. S. P., 1 part by volume; magnesia magma, U. S. P., 3 parts by volume. It is used as a lubricant in the intestinal tract for promoting evacuation of the bowel and as an antacid for the gastro-intestinal canal. The Haley M-O Co., Inc., Geneva, N. Y.

Sulpharsphenamine—Searle.—A brand of sulpharsphenamine—N. N. R. (New and Nonofficial Remedies, 1928, p. 81). It is supplied in 0.4 Gm., 0.5 Gm. and 0.6 Gm. ampules. G. D. Searle & Co., Chicago.

Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic).—A diphtheria toxin-antitoxin mixture (New and Nonofficial Remedies, 1928, p. 366), each c.c. representing 0.1 L—dose of diphtheria toxin neutralized with the required amount of antitoxin. It is marketed in packages of three 1 c.c. vials, in packages of one 15 c.c. vial; in packages of one 30 c.c. vial, and in packages of thirty 1 c.c. vials. National Drug Co., Philadelphia. (Jour. A. M. A., April 20, 1929, p. 1349).

### PROPAGANDA FOR REFORM

Food Value of the Papaya.—Certain proprietary houses have capitalized the use of the dried juice of papaya (*Carica papaya* L) because of the ferment it contains, "papain." Papain has some of the properties of pepsin, but its digestive power is uncertain and feeble. As far as proprietary papaya preparations, which are claimed to contain the active principle, are concerned, the Council on Pharmacy and Chemistry voted as long ago as 1914 not to admit papaya preparations to New and Non-official Remedies. (Jour. A. M. A., February 23, 1929, p. 672).

Contraindications to Salyrgan.—Salyrgan is a complex synthetic mercurial which is contraindicated in acute nephritis and in the more severe chronic forms with nitrogen retention in the blood. In other cases of edema it may safely be employed in an initial dose of 0.5 c.c. of the 10 per cent solution given intramuscularly or intravenously and increased to 1 or 2 c.c. if required; injections are made at intervals of from three to five days. The preparation is marketed by H. A. Metz Laboratories, Inc., of New York. (Jour. A. M. A., February 23, 1929, p. 673).

Neisser (Gonococcic) Vaccine and Erysipelas Vaccine (National Drug Co.) Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that the National Drug Co., Philadelphia, markets Neisser (Gonococcic) Vaccine and Erysipelas Vaccine. In 1924 the Council omitted from New and Non-official Remedies all gonococcus vaccines and in 1925 it omitted all streptococcus vaccines because experience with such preparations had not established their value and because the Council's consultants concluded that they had no field of usefulness. In accordance with this action, the Council declared the preparations of the National Drug Co., inadmissible to New and Non-official Remedies (Jour. A. M. A., January 5, 1929, p. 44).

Tartaroff.—This is exploited as a "marvelous discovery" that "acts like magic on the teeth," "Tartaroff is the greatest scientific discovery of the age. Nothing like it ever prepared before. It is not a tooth paste but a simple, harmless preparation that can be applied to the teeth in a few seconds. Immediately the teeth are transformed into gems of pearl white beauty." From the analysis of the American Dental Association it appears that Tartaroff is, for all practical purposes, a mixture of hydrochloric acid and water, with a little coloring matter added. The claim that a 1.2 per cent solution of hydrochloric acid is harmless to the teeth is pernicious to a degree. (Jour. A. M. A., January 5, 1929, p. 73).

Narcosan and Drug Addiction.—Narcosan is the "discovery" of one A. S. Horowitz, who came to the U. S. in 1913 and has been more or less continuously identified with attempts to promulgate cures for all sorts of disorders. There was the Horowitz-Beebe treatment for cancer known as "Autolysin," there were the Merrell Proteogens for the treatment of practically everything, and, finally, there was Narcosan, originally brought out about 1920 under the name "Lipoidal Substances." Lipoidal substances was not accepted by the Council on Pharmacy and Chemistry, because it was of unestablished composition and the clinical reports were not convincing. In 1926 an article appeared on the subject of Narcosan, which paper had previously been rejected by *The Journal of the American Medical Association*. Since then sensational newspaper articles about Narcosan have appeared. Now a preliminary report of the Mayor's Committee on Drug Addiction of the City of New York has been published. It is signed by the chairman of the committee, Dr. Alexander Lambert, who was one of the authors of the favorable report on Narcosan published in 1926. The committee report is summed up in the closing clause: "Narcosan has no merit as a specific treatment of drug addiction." (Jour. A. M. A., January 12, 1929, p. 151).

"Influenza Serobacterin Mixed."—A Revival.—In 1918 the Council on Pharmacy and Chemistry denied admission to New and Non-official Remedies of "Influenza Serobacterin Mixed—Mulford," holding that there was no evidence for the value of the mixture

and that its use was illogical. Since then nothing has happened to question the soundness of this judgment of the Council. Nevertheless, a circular letter sent to a large industrial concern conveys the impression that "Influenza Serobacterin Mixed" is an effective means of checking influenza and of treating respiratory infections. The apparent conviction by the promulgators of "Influenza Serobacterin Mixed" of the value of their preparation is not the slightest guarantee of their truth. This is merely an ill-considered crude revamping of old notions and phrases, surviving in discredited advertising matter, and now revived during a period of public fears in time of epidemic. (Jour. A. M. A., January 19, 1929, p. 233).

**More Influenza Vaccine Propaganda.**—As might have been expected from previous activities of the firm, among the earliest to enter the field in an endeavor to promote vaccine products during the current influenza epidemic, has been the G. H. Sherman Company, of Detroit. In 1924 the Council condemned the firm's influenza vaccine, particularly because of lack of evidence in its support, and all of the mixed vaccines in general because their use is not in the interest of sound therapy and public health. The more recent literature circulated by Sherman includes the claim that records of Drs. Don C. Sutton, Frederick Tice, Alexander Lambert and William O'Neill Sherman constitute suitable evidence in support of the use of the prophylactic vaccine against this disease. Letters from Drs. Sutton and Sherman cast considerable doubt not only on the statistics and statements cited by G. H. Sherman, in support of the use of his preparations but also on the right of that concern to use the material in advertising. For some years the products of G. H. Sherman have not been advertised in any of the publications of the American Medical Association and none stand accepted for New and Non-official Remedies at the present time. (Jour. A. M. A., January 26, 1929, p. 316).

**Iodide and Health.**—The extensive use of iodine in the prophylaxis of goiter has focused attention on the possible physiologic consequences of prolonged administration of this element. Hanzlik and his co-workers have made observations on rats. To an otherwise adequate ration, sodium iodide was added in amounts that corresponded to 3.3 mg. daily per kilogram throughout the major part of the life of the rats. This dosage would correspond to about 0.23 Gm. daily for an adult of 70 Kg. It was found that the continued administration of iodide in small daily doses in foods over long periods caused moderate though variable increases in weight and growth of the body in the majority of animals. The same tendency was indicated in rats on a deficiency diet. In contrast to the results obtained with iodide were those with sulphocyanate, bromide, arsenic, thallium and manganese. From these experiments there is no reason to believe that the prolonged use of iodide in small doses under ordinary conditions is detrimental. Hanzlik warns, however, that this would not apply to the continued use of iodide in specific conditions of the thyroid, or to large doses of the drug. (Jour. A. M. A., December 1, 1928, p. 1720).

**Nitrites in Seasickness.**—Sodium nitrite and glycerol trinitrate (nitroglycerin, which has the physiologic action of nitrites) have been used in seasickness but they have not been proved to be specific. From 3 to 5 grains (0.2 to 0.3 Gm.) of sodium nitrite are given at two-hourly intervals for several doses and

may be used as a preventive or a curative. (Jour. A. M. A., December 1, 1928, p. 1738).

**Health Appeal.**—The advertising writers of our progressive land have found the word "IT" in their profession means "Health Appeal." A cursory inspection of current periodicals indicates no lessening of the attention to the health angle. The folly of the all-or-nothing policy in foods, the ridiculousness of some of the arguments as to vitamin content, the preposterous claims for glorified antiseptics, the cautious venturings of time-tried tonics into the public field, and the dazzling claims of the promoters of light arouse the risibilities of the physician by their startling inconsistencies if not by their exaggerations. Who would have thought ten years ago that cigarettes would be sold to the American public by insistence on the healthful qualities of certain brands? The manufacturers of Lucky Strike cigarettes are promulgating a campaign in which they assert that these cigarettes do not cut the wind or impair the physical condition, and that "Lucky Strike satisfies the longing for things that make you fat without interfering with a normal appetite for healthful foods." The human appetite is a delicate mechanism and the attempt to urge that it be aborted or destroyed by the regular use of tobacco is essentially vicious. (Jour. A. M. A., December 8, 1928, p. 1806).

**The Potentor Fraud.**—In the latter part of 1925, physicians were receiving from one Julius Saur, who called himself an "importer" and did business from 17 West Forty-Second Street, New York City, a form-letter and a circular dealing with a device known as the "Potentor." The Potentor was a small hollow rubber ring with an air valve attached to it. It was sold as a device that would produce sexual rejuvenation in the male. The Postmaster-General issued a fraud order on March 20, 1928, closing the mails to Julius Saur. (Jour. A. M. A., December 8, 1928, p. 1823).

**Pascarnata-Merrell.**—According to the catalogue of the Wm. S. Merrell Co., Pascarnata is prepared from fresh *Passiflora incarnata* (passion flower) and represents the medicinal virtues of the whole plant, but no statement of the amount of passion flower contained in a given quantity of this proprietary is given. Pascarnata has not been accepted for New and Non-official Remedies nor is any passion flower preparation included in the book. The following are some of the claims advanced for Pascarnata: "It serves as an ideal soporific [soporific?], without narcotic action, and is one of the most desirable antispasmodic and antineuralgics available." "In nervous or sick headache, sleeplessness of typhoid and other fevers, cerebral excitement, overworked mental faculties, brain-fag and the over-stimulation due to worry and hysteria, Pascarnata will be found highly effective." "It is useful as a palliative in spasmodic bronchial asthma and whooping cough, and also in the hysteria due to dysmenorrhea." The following is the estimate of passion flower that is contained in the Epitome of the U. S. Pharmacopeia and National Formulary issued by the Council on Pharmacy and Chemistry: "Exploited by manufacturers of proprietary medicines for the treatment of insomnia, but probably inert." At one time passion flower was a constituent of many so-called female remedies and uterine tonics, but the drug was found to be without effect on the excised guinea-pig uterus. (Jour. A. M. A., December 15, 1928, p. 1914).



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## Editorial

### Thrombosis of the Coronary Arteries.

Insufficient circulation of blood through the muscle of the "beating" heart brings to the internist a clinical condition of ominous significance. Probably, those clinical entities, angina pectoris and coronary thrombosis, are both fundamentally related to that state of coronary insufficiency in which systolic action, as well as physiologic function of the neuromuscular bundle, is interfered by an ischemia, if not infarction itself. Obliteration of a coronary branch, or occlusion of the blood-flow through the coronary systems, set up the symptoms of pain and produce the imminence of sudden cardiac death.

One may well then, briefly, at least, consider recent inquiry into and publications of work on the coronary circulation. From the fetus at six months or an infant, the two ventricles are approximate equally vascular and, it is only at ages of two to four years that evidence points to fact that the left ventricle is more vascular than the right ventricle. The left ventricle increases in vascularity and by the tenth and fourteenth year the left ventricle is markedly more vascular than the right. The ratio of this predominance of vascular supply in left over the right ventricle continues through life with individual exceptions.

Anatomic review of the blood supply of the heart brings out the fact that left coronary artery supplies the entire anterior surface of the left ventricle and the adjacent third of the anterior surface of the right ventricle, the apex of both ventricles, all the interventricular septum at the apex, the anterior two-thirds of the remainder of the septum and the left half of the posterior surface of the left ventricle.

The right coronary, it is recalled, supplies two-thirds of the anterior surface and all the posterior surface of the right ventricle with the exception of the apex. The right, also, supplies the posterior third of the interventricular septum (except apex) and adjacent half of the basal three-fifths of the posterior surface of the left ventricle. This territorial distribution of the left and right coronary has variations. There is an importance to the definite difference in the branching of the coronary system supplying the walls of the right or left ventricle. As the small branches of the right coronary artery, supplying the right ventricle spread out over the heart in the same general plan as the subdivisions from which they arise, there is not, therefore, that tendency to right coronary occlusion, as is found in the arrangement of the left coronary artery throughout the walls of the left ventricle. Whitten has recently noted that in forty-seven hearts in which definite infarction was found, the right ventricle showed infarction only in four; and, it is possible, he notes, that in these four infarctions may have been due to occlusion of posterior descending artery which is the left ventricular type of artery. The infarction in the field of the left coronary system in the left ventricle rests upon the anatomic arrangement of these arteries which predispose to occlusion. We know the wall of the left ventricle is much thicker in the normal adult heart than that of the right. While the main branches of the left coronary artery course along the surface of the heart just beneath the epicardium the branching system, therefore, instead of spreading out in the same general plane, leave at right angle from the inferior surface of the large vessel or penetrate directly through the myocardium, giving off few branches until they reach the myocardium, where they turn, says Whitten, at a sharp angle and end in a mass of fine arteriols. The perpendicular branches leaving at right angles and penetrating the myocardium appear to immobilize the main branches. This immobilization appears to augment tortuosity of the system and it is at this point, at the ostia of perpendicular vessels penetrating the myocardium, that the greatest amount of arteriosclerotic change occurs in the intima of the vessel wall. This explains upon anatomical grounds the infarction of the left coronary field; in Whitten's cases thirty-six hearts, of the forty-seven studied, showed left ventricle infarction.

Coronary thrombosis and infarction most commonly occur in the left coronary and left ventricle, rarely in the right. The right ventricle infarction was found by Whitten usually associated with infarction of the left. The infarction of the posterior wall of the left ventricle is more common than has been recognized, says Whitten.

#### CLINICAL SIGNS OF CORONARY THROMBOSIS.

One has only to recall, then, the anatomical plan of coronary circulation throughout the "beating" heart to find some explanation for the course of clinical events in and following an angina or coronary thrombosis. Cardiac pain stands out as the master symptoms, though not always, by any means, of extreme severity. There may be a variety of types and locations of distributions of cardiac pain. We may follow Anderson's recent bill of symptoms in coronary thrombosis:

1. An anxious expression.
2. An ashen color of the skin.
3. While the posture is not characteristic, often the patient sits up and leans forward, sometimes holding the chest, transfixed.
4. The pulse is weak: may be alternative, in regularity and irregularity: slow or fast: in this unlike angina, where it is often unaltered.
5. The blood pressure shows a sudden drop in both systolic and diastolic pressure. Often this fall of pressure is from previous high pressure levels.
6. Fever appears; 99° to 101°, appearing at the end of the first day.
7. While respiration may be normal, it may be shallow, rapid, or forced. On auscultation, rales may be heard at the base suggesting possible pneumonia.
8. The heart impulse is feeble; the heart may be increased in its diameter.
9. Heart sounds are usually feeble; a systolic murmur may be heard at the base and apex, and irregularity may be noted in a previously regular heart. Most notable, a pericardial friction sound is heard; the location depends upon the degree and location of the infarction in the myocardium.
10. Pain over the liver makes abdominal pain a confusing sign. Coronary thrombosis may give a liver pain due to distension and irritation of Glisson's capsule, which may resemble pain of "gall-stone colic," acute cholecystitis, acute pancreatitis or appendicitis. A few patients suffering with coronary disease have

been subjected to an abdominal operation looking for lesion that did not exist there.

11. Signs of gradual heart failure. The order in which these occur, may be an index as to which ventricle has suffered the infarction: the left predominating.

12. Embolic phenomena occur: the breaking up in the endocardial zone of the infarction may give embolic lesions in arms, legs, head, and lungs.

13. Electrocardiographic signs.

Barnes has recently noted, that cardiac lesions throwing a predominant strain on the left ventricle were associated with inversion of the T-wave in lead I, or in I and II combined, if any T-wave change occurred.

While Parkinson and Bedford, in 1928, published the conclusion that "all available evidence points to the fact that it is an occlusion of the left coronary artery or its branches which produces T-wave of infarction," Barne's study indicates that occlusion of the right coronary artery, when it produces infarction in the posterior portion of the ventricle, also produces characteristic changes in the T-wave.

#### Disturbances and Disease of Vessels of the Hands and Feet.

Medical practitioners, treating various constitutional diseases, are frequently affronted by more or less obscure or ill-defined disease in the blood vessels of the extremities; localizing there, disease is not symptomatically apparent but never the less the patient may be upon the borderline of serious symptoms. So common is this condition observed in diabetes, arteriosclerosis, and Bright's disease that an understanding of the organic or obliterative type as well as the functional or vasomotor type of the vessels of the extremities may be called to mind. It is with this thought in mind that we present comment upon thrombo-angiitis obliterans.

Recently Allen and Brown\* have discussed this subject in a well considered paper and much that we say may be accredited to this work. Peripheral blood vessel diseases may be divided into two general classes: The organic and the functional.

These authors present a table that deserves careful reading for in it may be found a good arrangement of arterial disease in peripheral blood vessels.

This scheme epitomizes the subject and at



a glance enables one to get a general survey of this important and often neglected group of disorders in the circulation of the feet and hands.

The frequency of diagnosis of Raynaud's disease when organic disease is present sometimes advancing with progressing obliteration of the vessels of the extremities makes for the necessity to keep clearly in mind the distinctive signs of each condition.

A consideration of functional or vasomotor disturbances becomes necessary in any discus-

sion are characterized by intermittent occurrences of "redness and sense of heat;" designated erythromelalgia. The redness or rubor of obliterating vascular disease is distinguishable from that of erythromelalgia by the absence of heat, by absence or diminution pulsations in arteries, and, by the blanching with elevation of the part.

Organic disease of peripheral vessels in the feet, particularly, are divided by these authors into (1) thrombo-angiitis or Beurger's disease, and (2) arteriosclerotic disease. There are cer-

Functional or Vasomotor types	Local distribution	Vaso constricting types	<ol style="list-style-type: none"> <li>1. Multiple-phase color reaction. (Raynaud's disease.)</li> <li>2. One phase color reaction acrocyanosis, dead finger local syncope.</li> </ol>
		Vaso dilating types	Erythromelalgia.
	General distribution	Vaso constricting types	Primary or essential hypertension, early stages.
		Vaso dilating types	Primary or essential hypertension.
	Local distribution	<ol style="list-style-type: none"> <li>1. Arteriosclerosis, with or without thrombosis; diabetic gangrene.</li> <li>2. Thrombo-angiitis obliterans (Beurger.)</li> <li>3. Simple thrombosis or embolism.</li> <li>4. Aneurysm with or without thrombosis.</li> </ol>	
	General distribution	Arteriosclerosis (1) Primary. (2) Secondary to hypertension.	

sion of this sort. These abdominal vascular disturbances may be of either (a) vaso constriction or (b) vasodilating, but in both of these, peripheral vessels exhibit normal pulse and color changes. The French physician Raynaud first described the sort of disturbance of hands and feet produced by symmetrical vasoconstriction of the blood vessels bringing about clear cut color changes; such designations as "dead finger," "white finger," "acrocyanosis," and "acroasphyxia". The vasodilation phenomena of peripheral circu-

tain symptoms every clinician associates in the extremities with an insufficient blood supply, particularly exhibited during exercise, and these symptoms are a peculiar sense of muscle fatigue, or pain. This pain is often intermittent and takes on the form of intermittent claudication. More striking is the absence of "pulse" in the palpable arteries of the foot, associated with redness of the toes while the foot is hanging down, but with a prompt "blanching" or pallor when the foot is elevated.

In thrombo-angiitis obliterans trophic

changes occur; following, gangrene may occur involving one toe or the ball of the foot or the entire foot. Pain of persistent and excruciating type may characterize the above progression of pathology.

### Disorders and Diseases of Cerebral Arteries.

The circulatory system of the brain is subject to disturbances and diseases that makes comment upon anatomical distribution of blood vessels of interest in this connection. One recalls that the arterial blood supply of the brain is derived from the two vertebral and the two internal carotid arteries, that these four arteries unite in a system of arterial plexuses at the base of the brain, known as the circle of Willis, and send out therefrom branches to the whole of both cerebral hemispheres. The pons, medulla and cerebellum receive blood supply through vertebrals and basilar artery and they participate in the supply of arterial blood through posterior cerebral arteries, to the hemispheres where is also received contributory vascular supply from carotid system.

From the Circle of Willis two groups of arteries go (1) to the interior structures of the brain affording arterial blood supply to such central structures as the basal ganglia and the internal capsule (2) to the surface of the hemispheres affording small branch arterials for blood supply into the cortex—some branching in the gray matter, others penetrating and reaching, in countless offshoots, the basal ganglia. While no anastomosis seems to exist between these groups there is undoubted overlapping of distribution in this field. From the Circle of Willis arises the important brain arteries, anterior, middle and posterior cerebrals and upon them the brain cortex depends for blood supply and in this structure there is a much over-supply of vessels, but only slightest anastomosing of vessels of different origins.

The physiologic consideration may be noted in this connection: that the same influences control the circulation of the brain that control the circulation in other parts of the body. For instance, the brain dilates with each cardiac contraction and is influenced by the respiration. While there is dispute of the exact mechanism of the vasomotor control of the cerebral circulation, the action of expiration influences intracranial blood supply and pressure. McLeod sums up the question by saying that "intracranial pressure varies directly with venous pressure within the skull and that

it passively follows changes in the pressure in the arteries and veins of the systemic circulation."

From this relationship one can see the influence of the alterations of blood pressure in that great arterial abdominal field: the splanchnics. While it is believed that cerebral arteries have to some extent a vaso mechanism of their own, the above general consideration should be recalled in connection with diseases of brain vessels and clinical exhibitions of these lesions in the every day work among patients with vascular disease.

### Thrombosis, Embolism and Cerebral Hemorrhage.

Thrombosis in a cerebral artery occurs as result of embolus or disease of arterial wall.

Embolism of the cerebral artery may occur from a mass of fibrin, a piece of diseased cardiac valve, exfoliation of fragments of internal coat of aorta, a slough from infarcted area of endocardium following coronary thrombosis. The favorite site for the lodgement of cerebral embolus is branches of the middle of the cerebral artery on the left side of the brain—this accident may produce instant death, paralysis, brain abscess or cerebral softening.

Thrombosis from arterial disease may be acute, subacute or chronic. Acute lesions arise from infective processes or specific fevers. Subacute arteritis of brain vessels may arise from syphilis and here the middle cerebral and its branches appear to be favorite site from which the symptomatic evidence arises in this condition. But chronic arteritis or atheroma is the most insidious and usually cause of thrombosis.

Hemorrhage of cerebral vessels dependent upon disease of vessels and arterial hypertension is another accident often found in this group of vascular lesions. The inside vessels are usually affected. The artery of cerebral hemorrhage, of Charcot, brings into the clinical field a large number of patients that require careful medical attention.

Clinically physicians need to be on the alert for incipient stages of vascular disease. Often the most lamentable phase of some chronic malady eventuates in some vascular accident, such as may be illustrated from the symptomatology of the gangrene of the extremities, the anginal, and other heart conditions and the lesions of the brain, as follow upon the ter-



minimal eventualities of vascular lesions in these several important regions of the body.

A. G. B.

### The Cleveland Clinic Disaster.

The world at large and especially the medical profession has rarely received a greater shock than the distressing calamity which recently befell the Cleveland Clinic, in which the lives of one hundred and twenty-five persons were lost. There has been no precedent in the history of medical institutions that can compare with this tragic event. The sympathy of the entire medical profession has been with Dr. Crile and his colleagues.

The immediate cause seems to have been unquestionably the rapid combustion of nitro-cellulose films coated on both sides with silver bromide in dried gelatine emulsion, liberating highly poisonous gases of several different kinds. Chemical experts from the United States Government, municipal and state authorities have been conducting investigations to determine more definitely the details of this accident and the nature of the poisons which rendered such wholesale slaughter.

Considering the fact that millions of feet of film of similar composition are used daily in motion picture exhibitions and almost universally in the roentgen-ray departments of our hospitals and private laboratories throughout the world, is it not a miracle that a similar catastrophe has not previously occurred? There have been a few isolated reports of more or less extensive fires and some instances of poisoning from the gases resulting from film combustion, but the chief dread has been the fire hazard rather than the poisonous gases such as seem to have been the chief agent in the Cleveland catastrophe.

While it behooves all laboratories handling X-ray films to conform to the requirements of the fire prevention organizations, there should be no hysteria, resulting, perhaps, in the expenditure of large sums of money in the construction of expensive storage rooms or other means of filing our films which may by reason of future legislation become a total loss, but let us patiently await the action of the investigating bodies and govern our procedure in accordance with the reports of their findings.

The VIRGINIA MEDICAL MONTHLY extends to Dr. Crile and his associates of the Cleveland Clinic its profound sympathy in the losses

which have been sustained, and begs to assure them of its confidence in the future of the Clinic and its admiration for the splendid work that has already been accomplished.

A. L. G.

## News Notes

### Finals Medical College of Virginia.

The Medical College of Virginia held its ninety-first commencement exercises for the schools of medicine, dentistry, pharmacy, and nursing in Richmond, from May 25th through May 28, 1929. Student night, held in the John Marshall High School auditorium, was the first event on the program. Dr. George E. Booker delivered the baccalaureate sermon at Centenary Methodist Church on the following day.

Alumni day was held on Monday, May 27th. The members of the alumni association together with the board of visitors of the Medical College and the senior classes were guests at a luncheon in Cabaniss Hall. The ball game of alumni and faculty versus students was played that afternoon. The alumni dinner was held at the Commonwealth Club at 6:30 that evening, followed by the annual reception and dance. Dr. Edwin Alderman, president of the University of Virginia, was the principal speaker at the final exercises held at the Mosque, May 28th.

At these exercises, degrees were conferred upon ninety in the department of medicine, twenty-three in dentistry, twenty-five in pharmacy, nineteen in nursing, five in dental assistants' course, and six in medical technicians' course. It was announced that seventeen of the graduates in medicine would receive commissions as first lieutenants in the Officer's Reserve Corps of the United States Army.

Following are the hospital appointments which were announced at this time:

*Johnston-Willis Hospital, Richmond, Va.*—Dr. T. E. Knight, Whaleyville.

*Medical College of Virginia Hospitals, Richmond, Va.*—Drs. P. H. Winston, Virgilina; Margaret Buckner, Clio, S. C.; F. E. LaPrade, Republican Groce; C. A. Nunnally, Richmond; W. A. Seawell, Lemon Springs, N. C.; Hubert A. Shaffer, Parsons, W. Va.; F. I. Steele, Mill Creek, W. Va.; R. C. Thomason, Richmond; B. W. Wilkinson, Shinnston, W. Va.; W. A. Graham, Hills-

- boro, Ky.; O. K. Burnette, Leesville; E. L. Copley, Richmond; N. P. Fitts, Durham, N. C.; W. L. Robinson, Ivy, N. C.; A. B. Choate, Huntersville, N. C.; and T. N. Hunnicutt, Jr., Newport News.
- St. Luke's Hospital, Richmond, Va.*—Drs. A. N. Chaffin, Wytheville; R. N. DeHart, Floyd; and T. M. Sloan, Charlotte, N. C.
- Stuart Circle Hospital, Richmond, Va.*—Drs. C. L. Harshbarger, Weyer's Cave; W. E. Tomlinson, Richmond; and Charles R. Robins, Jr., Richmond.
- Tucker Sanatorium, Richmond, Va.*—Dr. O. L. Hite, Virgilina.
- Johnston Memorial Hospital, Abingdon, Va.*—Dr. George D. Pettit, Clifton, S. C.
- Bluefield Sanatorium, Bluefield, W. Va.*—Dr. H. H. Ballard, Peterstown, W. Va.
- Long Island Hospital, Boston, Mass.*—Drs. J. H. Robinson, Shinnston, W. Va.; and A. C. Chandler, Falls Mill.
- Kings County Hospital, Brooklyn, N. Y.*—Dr. Ramon D. Garcin, Jr., Richmond.
- St. John's Hospital, Brooklyn, N. Y.*—Dr. Joseph M. Jabbour, Roanoke.
- Charleston General Hospital, Charleston, W. Va.*—Drs. W. L. Cooke, Richmond; T. R. Rolston, Staunton; and L. I. Hoke, Princeton, W. Va.
- St. John's Hospital, Cleveland, O.*—Dr. James R. Brown, Richmond.
- Chesapeake and Ohio Railroad Hospital, Clifton Forge, Va.*—Dr. E. S. Frazier, Greenville, Ky.
- Raiford Hospital, Franklin, Va.*—Dr. James E. Nance, Linwood, N. C.
- Harrisonburg Hospital, Harrisonburg, Va.*—Dr. S. D. Sutliff, Jr., Shippensburg, Pa.
- Hazelton Hospital, Hazelton, Pa.*—Dr. B. F. Cozart, Stem, N. C.
- St. Luke's Hospital, Jacksonville, Fla.*—Dr. Wm. P. Stull, Jacksonville, Fla.
- City Health Department, Johnson City, Tenn.*—Dr. W. G. Preas, Johnson City, Tenn.
- Conenough Valley Memorial Hospital, Johnstown, Pa.*—Dr. David Shevitz, Richmond.
- St. Joseph's Hospital, Lancaster, Pa.*—Drs. C. H. Bondurant, Roanoke; and B. F. Pearce, Princeton, N. C.
- Mount Vernon Hospital, Mt. Vernon, N. Y.*—Dr. T. G. Gaskins, Bridgton, N. C.
- Hospital of St. Barnabas, Newark, N. J.*—Dr. A. W. Pennington, Newark, N. J.
- New York Post-Graduate Hospital and Medical School, New York, N. Y.*—Dr. H. R. Hartwell, Roanoke.
- Norfolk Protestant Hospital, Norfolk, Va.*—Dr. B. L. Parrish, Richmond.
- St. Vincent's Hospital, Norfolk, Va.*—Drs. William J. Ellis, Covington; S. O. Bennett, Gretna; R. M. Reynolds, Norfolk; and C. P. Ryland, Jr., Clarendon.
- Petersburg Hospital, Petersburg, Va.*—Dr. L. W. Holladay, Richmond.
- Jewish Hospital, Philadelphia, Pa.*—Dr. Joseph Horwitz, Richmond.
- Memorial Hospital, Princeton, W. Va.*—Dr. C. F. Johnston, Princeton, W. Va.
- St. Joseph's Hospital, Reading, Pa.*—Drs. L. M. Halloran, Hinton, W. Va.; and D. W. Ritter, Winchester.
- Lewis-Gale Hospital, Roanoke, Va.*—Drs. E. M. McDaniel, Fayetteville, N. C.; and A. C. Davis, Roanoke.
- Memorial Hospital, Roxborough, Pa.*—Dr. Morris Marks, Warren, R. I.
- Southern Pacific Hospital, San Francisco, Calif.*—Dr. W. G. Bishop, Galax.
- Saint Anthony's Hospital, St. Louis, Mo.*—Dr. Edward G. Dewein, Jr. Belleville, Ill.
- Tampa Municipal Hospital, Tampa, Fla.*—Dr. J. I. Turbeville, Century.
- Holy Name Hospital, Teaneck, N. J.*—Dr. James P. Pregnall, Richmond.
- Lucas County Hospital, Toledo, O.*—Dr. W. M. B. Brown, Greenville, N. C.
- Garfield Memorial Hospital, Washington, D. C.*—Dr. Shepherd F. Parker, Goldsboro, N. C.
- Saint Elizabeth's Hospital, Washington, D. C.*—Drs. J. T. Barnes, Kenly, N. C.; A. Ray Dawson, Reedville; C. C. Graves, Jr., Richmond; and A. M. Duval, Rhoadesville.
- Walter Reed Hospital, Washington, D. C.*—Drs. C. L. Baird, Dillwyn; and S. L. Cooke, Callands.
- Ohio Valley General Hospital, Wheeling, W. Va.*—Drs. D. D. Wilkinson, Shinnston, W. Va.; and R. B. Grimm, Deep Valley, Pa.
- Eastern State Hospital, Williamsburg, Va.*—Dr. E. T. Terrell, Jr., Beaver Dam.
- City Memorial Hospital, Winston-Salem, N. C.*—Drs. W. A. Anthony, Gastonia, N. C.; and B. H. Hopkins, Stuart.
- Marine Hospital, U. S. Public Health Service.*—Dr. Chapman Binford, Pamplin.
- Other members of the graduating class in medicine are:



Dr. George A. Andrews, Mt. Gilead, N. C.  
 Dr. Rex Blankenship, Richmond.  
 Dr. Charles Y. Griffith, Hague.  
 Dr. William F. Hatcher, Clifton Forge.  
 Dr. Charles Lipshutz, Bayonne, N. J.  
 Dr. Andrew J. Merva, Nanticoke, Pa.  
 Dr. Joseph M. Moore, Petersburg.  
 Dr. Norman G. Patterson, Staunton.  
 Dr. James S. Richardson, O'Keefe, W. Va.  
 Dr. Robert R. Sisson, Richmond.  
 Dr. Robert L. Waddell, Scottsville, N. C.  
 Dr. Bailey G. Weathers, Shelby, N. C.  
 Dr. Ellis G. Winstead, Richmond.

#### **The Northern Neck Medical Society,**

Composed of doctors residing in the Counties of Northumberland, Richmond, Westmoreland and Lancaster, held its regular meeting at Heathsville, Va., May 22, 1929. The meeting was called to order by the President, Dr. B. H. B. Hubbard, and after routine business was transacted a number of papers were read. Among the essayists were Dr. T. Neill Barnett, of Richmond, Va., who read a paper on "The Importance of Early Diagnosis and Treatment of Peptic Ulcer," which was the subject of much discussion. Dr. Powell Williams gave a talk on "Pernicious Anemia," illustrated by lantern slides showing the marked improvement in the new method of treatment with Liver Extract. Dr. W. Lowndes Peple read a paper on "Congenital Pyloric Stenosis" which was also illustrated with lantern slides. This paper was discussed by Dr. Hubbard, Dr. Downing and several others.

In addition to the large attendance of regular members, the guests consisted of Drs. Wm. R. Weisiger, T. Neill Barnett, Wallace Gill, W. Lowndes Peple, Powell Williams, and Waring Lewis, of Richmond; Drs. Wm. F. Cooper and Samuel Downing, of Newport News; and Drs. J. E. Cole and J. M. Holloway, of Fredericksburg. Among the local attendants were Drs. Hubbard, President, M. C. Oldham, Secretary, B. A. Middleton, Treasurer, C. T. Pierce, R. L. Hubnall, L. E. Cochrell, H. J. Edmunds, S. E. Weymouth, R. E. Booker, and W. B. Richardson. Dr. Brand, of Callao, Va., was elected to membership.

A very delightful luncheon, served in the hotel, was enjoyed by everyone. Heathsville is a very charming old-fashioned town situated on the direct road from Warsaw to Reedville. It is the county seat of Northumberland County, and the meeting was held in the Court House which is a splendid modern structure

filled with interesting portraits and pictures of famous men from the County.

At the season of the year, with the laurel in full bloom, the drive from Warsaw to Heathsville is well worth the trip, even if there were no medical meeting going on.

#### **Our Charlottesville Meeting.**

Plans are being formulated for the entertainment of the doctors and their guests at the sixtieth annual meeting of the Medical Society of Virginia, to be held in Charlottesville, October 22nd, 23rd and 24th, under the presidency of Dr. J. Bolling Jones, of Petersburg.

Hotels are giving the following rates:

##### **MONTICELLO HOTEL**

Single room without bath.....	\$2.00 to \$2.50
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1 in room with running water.....	1.50 to 2.00
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Free Garage Facilities.

#### **Dr. C. D. Bennett,**

Has returned to Blue Ridge Sanatorium, after visiting his family at Chatham. Dr. Bennett is acting as medical adviser at the Sanatorium.

#### **The Amelia County Medical Society,**

At a regular meeting on April 19th, elected the following officers for the ensuing year: President, Dr. J. M. Habel, Jetersville; vice-president, Dr. James L. Hamner, Mannboro; secretary-treasurer, Dr. G. A. Arhart, Amelia.

#### **Portrait Presented to Hospital.**

In connection with the graduating exercises at the Johnston-Willis Hospital, the nurses alumnae association presented the hospital with a portrait of Dr. A. Murat Willis. Only a few friends, the nurses and the staff were present.

#### **The West Virginia State Medical Association**

Held its sixty-second annual meeting at Martinsburg, W. Va., May 21-23. At the meeting of the House of Delegates on the last morn-

ing, Dr. Walter E. Vest, Huntington, was elected as president for 1930. Other officers selected were Drs. A. B. Eagle, first vice-president; R. V. Shanklin, second vice-president; F. T. Scanlon, third vice-president; T. M. Barber, treasurer; C. G. Morgan, C. H. Hall, S. S. Hall, O. B. Biern, H. G. Steele, and H. A. Walkup, councillors. White Sulphur Springs was selected as the place for the 1930 meeting.

#### **Dr. Guy Hinsdale,**

For the last twenty-five years a practitioner at Virginia Hot Springs, has been appointed medical director of the Greenbrier, White Sulphur Springs, W. Va., taking effect June 1st.

#### **The American Gynecological Society,**

At its annual meeting held recently, elected Dr. Charles F. Norris, of Philadelphia, Pa., president, and re-elected Dr. Floyd E. Keene, of Philadelphia, secretary.

#### **Raven Society of University of Virginia.**

The honorary society established at the university in memory of Edgar Allen Poe, recently elected thirty-seven students, three faculty members, seven alumni, and one member of the board of visitors to its membership.

The three faculty members chosen are: Dr. William Wirt Waddell, Dr. Fletcher Drummond Woodward and Mr. Thomas Cary Johnson.

#### **Engagement Announced.**

The Rev. and Mrs. James Herbert Moss announce the engagement of their daughter, Alice Creasy, to Dr. T. Elmore Jones, of Portsmouth. The wedding will take place in June.

#### **Dr. Staunton K. Livingston,**

Recently connected with the University of Pennsylvania Hospital, Philadelphia, Pa., is now located in Washington, D. C., where he is limiting his practice to surgery.

#### **The New York Academy of Medicine**

Has arranged for a second Fortnight, to be held October 7th to 19th of this year and has chosen as the subject "Functional and Nervous Problems in Medicine and Surgery." Sessions will be held in Teaching Hospitals, using nine of the largest hospitals of the city with a promise of an abundance of clinical material.

The list of speakers includes some of the best known specialists in America and Europe.

The profession generally is invited to attend, no fees being charged.

#### **Plans for a New Hospital,**

In Richmond, are under way. Rt. Rev. An-

drew J. Brennan, D. D., bishop of the Catholic diocese of Richmond, has purchased a site for a Catholic hospital on the Cary Street Road. It is planned to erect a hospital to accommodate about 150 beds.

#### **Dr. Joseph D. Collins,**

Portsmouth, Va., will assume the duties of chief surgeon of the Seaboard Air Line, succeeding the late Dr. Joseph M. Burke.

Dr. Collins graduated from the University College of Medicine in 1905. He is a member of the Medical Society of Virginia.

#### **The Augusta County Medical Association**

Held its regular quarterly meeting at the Y. M. C. A., Staunton, Va., Wednesday, May 1st. There were fourteen members present. Interesting papers were read by Drs. Robertson and M. J. Payne. A committee was appointed to consist of the President, Secretary, and Treasurer to arrange for the annual meeting.

#### **"Peter Pan" Is Now a Gold Mine for a Children's Hospital**

What child hasn't seen Peter Pan either on the stage or in "the movies?" And now every time any child, young or old, pays for the delight of seeing that whimsical play of Sir James Barrie's, some of the money will go to help little sick children in London to get well again. For that beloved author has given over unconditionally to the Hospital for Sick Children in Great Ormond Street, all his rights to royalties from Peter Pan, a gift which it is estimated will add something like \$10,000 a year to the hospital's income. This generous action has already borne fruit, for "the first pirate" has anonymously given a pound note (nearly \$5.00) to the hospital, hoping that others might follow his example.

#### **Dr. and Mrs. William A. Shepherd,**

And their son, Dan Fitzhugh, of Richmond, Va., have returned from Lexington, where they visited William A. Shepherd, Jr., who is a cadet at the Virginia Military Institute.

#### **Official Call to the Officers, Fellows and Members of the American Medical Association.**

The eightieth annual session of the American Medical Association will be held in Portland, Ore., from Monday, July 8th to Friday, July 12, 1929.

The House of Delegates will convene on Monday, July 8th.

The Scientific Assembly of the Association



will open with the General Meeting held on Tuesday, July 9th, at 8:30 P. M.

The various sections of the Scientific Assembly will meet Wednesday, July 10th, at 9:00 A. M. and at 2:00 P. M. and subsequently according to their respective programs. William S. Thayer, President; Frederick C. Warnshuis, Speaker, House of Delegates. Attest: Olin West, Secretary, Chicago, Ill., April 15th.

**Dr. R. H. Fuller,**

South Boston, Va., is spending a month at the Mayo Clinic, Rochester, Minn.

### **Sickness Among Working Women of Germany.**

Married women form 40 per cent of the gainfully employed women of Germany. The harmful effect on health of the combined demands of employment, housework, and the care of children is considered an important element in the great disparity between the amount of illness among gainfully employed women in that country and among women not so employed. The incidence of illness among the employed women is five to eight times as great as among those not gainfully employed. The sickness-insurance funds, in which membership is compulsory for all employed women and girls, report that the sickness rate for their women members is 23 per cent higher than for the men.

### **Admiral Cary T. Grayson**

Formerly with the U. S. Naval Dispensary, Washington, D. C., has been placed on the retired list of the Navy.

### **Parke-Davis Scientist Retires.**

Following a noteworthy service of thirty-four years with the house of Parke, Davis & Co., Dr. E. M. Houghton retired from active duty on May 1, but will continue as a member of the company's executive staff, with the title of Consulting Director of the Research and Biological Laboratories.

### **Sale of Grace Hospital in Richmond.**

Drs. Robert C. Bryan and H. Stuart McLean announced the sale of Grace Hospital to Drs. A. L. Herring, J. A. Rollings, T. B. Pearman, and E. T. Trice.

Drs. Bryan and MacLean will continue the practice of medicine in Richmond.

### **Queensland's Maternal Welfare Program.**

The Government of Queensland, Australia, has already opened sixty-four maternity hospitals, and eleven more are in process of construction. The hospitals were first provided

for the sparsely settled "bush" but are now being built also in more populous centers. A rural nursing program is being developed, and prenatal clinics are being associated with the maternity hospitals in an endeavor to reduce the rate of maternal mortality, which has not appreciably declined in Queensland during the last twenty years. The infant mortality rate of the State, on the other hand, is unusually low. For a recent five-year period it was a little over fifty per 1,000 live births. The lowest rate for any State in the United States birth-registration area during the same period was that of Oregon, which was over four points higher, but the rate for New Zealand was only forty-one.

### **Dr. Walter E. Vest,**

Huntington, W. Va., a member of the Medical Society of Virginia, was recently elected President of the West Virginia State Medical Association.

### **The Central Tri-State Medical Society of West Virginia, Kentucky, and Ohio**

Held its quarterly meeting in Portsmouth, O., May 16th, under the presidency of Dr. William R. Laird, of Montgomery, W. Va., interesting papers were read by Dr. Albert Freiburg, of Cincinnati; Dr. Frank Lahey, of Boston; Dr. David Riesman, of Philadelphia; Dr. J. C. Small, of Philadelphia; and Dr. Lewis G. Cole, of New York City. There were about six hundred physicians present from the three states.

### **Dr. Roy K. Flannagan,**

Assistant state health commissioner and director of rural health work, has returned to his office, after an absence of ten days, during which he made visits of inspection and study at Montgomery, Ala., Nashville, Tenn., and several other places in those states.

### **Dr. L. S. Early,**

Petersburg, Va., recently attended the annual meeting of the National Boy Scout organization in New York City.

### **Dr. A. F. Wood,**

Parksley, Va., and his family are on a two-week trip to the mountains of Virginia, during which he will attend the graduation of his daughter, Virginia, at Randolph-Macon, and his son, Randolph, at the University of Richmond.

### **Dr. D. Hunter Marrow**

Has returned to his home at Union Level,

Va., after the winter spent at Daytona Beach, Fla., as is his custom.

**Dr. Ennion G. Williams.**

State Health Commissioner, attended the conference of the State and Provincial Health Officers of North American, in Washington.

Dr. Williams made a report as chairman of the committee on the provision of the Shepherd Towner Act.

**Dr. William F. Drewry,**

For a number of years of Petersburg, formerly Superintendent of the Central State Hospital, has located in Richmond and entered upon his duties as director of the Bureau of Mental Hygiene in Virginia—a division of the Department of Public Welfare of this State.

**Dr. A. L. Carson, Jr.,**

Medical College of Virginia, class of 1925, after three years of general practice at Thorpe, W. Va., is now on the obstetrical service of the Nursery and Child's Hospital, New York City.

**Tuberculosis Infection Among School Children.**

The records of 42,000 school children in Massachusetts examined and tested by the Massachusetts Department of Public Health during a recent three-year period indicate that over one-fourth of them were infected with tuberculosis. No difference in susceptibility was found among children of various nationalities, but approximately twice as many with a history of exposure to pulmonary tuberculosis showed infection as those who had no such history.

**Girl Infants More Robust Than Boy Infants.**

More boy babies than girl babies are born every year, and more boy babies die, according to the U. S. Children's Bureau. For every 100 deaths among girls under 1 year of age in the United States there have been at least 130 deaths among boys of the same age. It has been suggested that the regional and seasonal differences which have been found in the sex mortality ratios are dependent on the differences in the amount of sunlight reaching the infant, the greater need of the male infant for sunlight being indicated by his greater tendency to certain diseases (such as rickets and tetany) likely to develop when the amount of sunlight is insufficient.

**Italy's Physical Education Program.**

Physical training of all children up to the age of seventeen, when military training be-

gins for boys, has recently been decreed by the Government of Italy. It is to be directed by a Government organization. All types of physical culture and sport, such as bowling, rowing, and tennis, have been made obligatory. Under the age of fourteen children are not permitted to take part in athletic competitions, but both boys and girls between the age of fourteen and seventeen are permitted to enter them under the supervision of the Italian Olympic Committee. The Fascist Party has made provision for insuring both boys and girls against results from injuries while participating in patriotic, educational, or sporting events authorized by the Government.

**Wanted.**

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**Wanted.**

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## Obituary Record

**Dr. William Herbert Lewis,**

Lawrenceville, Va., died May the 3rd, after having been in bad health for more than a year. Dr. Lewis was in his fifty-seventh year, and was a graduate of the medical department of the University of Virginia, class of 1894. He was a member of the Medical Society of Virginia. His wife survives him.



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*[ A similar advertisement appeared in the Journal of Biological Chemistry in January, 1928 ]*

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# Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 56, No. 4.  
WHOLE No. 925.

RICHMOND, VA., JULY. 1929

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60th Annual Meeting, Medical Society of Virginia in Charlottesville, Fall 1929

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## ABDOMINAL PAIN AND ITS RELATION TO NEUROLOGICAL DISEASES.\*

By HOWARD R. MASTERS, M. D., Richmond, Va.  
Associate in Nervous and Mental Diseases, Medical College of Virginia.

But few, if any, of the branches of medicine are free from concern of the importance of abdominal pain in its relation to disease of the immediate and remote regions of the body. It is my purpose, briefly, to discuss the neurological and associated conditions as related to abdominal pain.

No other organic disease causes more distressing pain than the gastric crises of tabes dorsalis, nor are there many conditions in which the symptoms present greater pitfalls of diagnosis to the surgeon. Inquiry into the past history of the patient regarding specific infection, an examination of his station, of his deep and pupillary reflexes and his coordination might prevent an operation and serve the individual to a better purpose. A negative blood and spinal fluid Wassermann does not of necessity preclude tabes and associated gastric pain, for if clinical symptoms are present, it is not impossible to obtain a positive test with some form of provocative treatment. Gall-bladder, common bile duct, ureter and bladder crises occur, as well as gastric crises, though they are comparatively rare. The pain is similar to that in the diseases of these organs yet the causative factor may be diagnosed with the tests mentioned above. The pain of the tabetic crises may be dull and continuous, but the type usually met with is accompanied by severe lancet like pains with nausea, vomiting and sometimes diarrhoea. Morphine in large quantities will bring relief, but it should be administered with precaution as the liability of addiction with this type of patient is great.

Certain orthopedic conditions cause spinal cord and root irritation from pressure. Of these spinal arthritis is the most common and not infrequently presents considerable difficulty

in the differential diagnosis. Occasionally the roentgenologist discovers spinal arthritis while making a gastro-intestinal study. This spinal condition is to be distinguished from pathological lesions, especially of the upper abdomen and ureteral colic. Pain over the diseased vertebra, limitation of motion with tenderness of the spine and the roentgenographic findings are confirmatory. When Pott's disease becomes extensive, damage to the spinal cord and the spinal roots ensues, causing pain which is felt in the peripheral nerves. The pain is severe and at times distressing and misleading. In children a pain coming on suddenly, which is of longer duration than is usual in acute abdominal conditions and persistently worse at night, should prompt one to look beyond the abdominal region for pathology.

Spinal cord tumors, transverse myelitis and meningeal irritation, depending on the level, may simulate a lesion in any quadrant of the abdomen. Differentiation here may be made by elaborating on the history, by examining the reflexes, the careful testing of skin sensation and by measuring the spinal fluid pressure. In the latter test the presence of a spinal block is regarded by some as conclusive evidence of a cord neoplasm; while muscular weakness, a definite sensory level, diminished or absent reflexes and increased cytological changes in the spinal fluid, together with a moderate temperature, are strongly suggestive of spinal myelitis. Both of these conditions may or may not be accompanied by abdominal pain, bowel and bladder difficulties. Carcinoma of the spinal cord is relatively rare and is in most instances secondary to carcinoma elsewhere, though it may be due to an extension of cerebral malignancy. I recall the case of a man who had agonizing epigastric pain which was unexplained by an exploratory laparotomy. Later, when his autonomic pathways had been destroyed his pain ceased, but he developed mental symptoms and signs of organic neurological disease and died. At

\*Read at the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, October 16-18, 1928.

autopsy a large hypernephroma on the right side was found with extensive retroperitoneal gland involvement and metastasis to the right occipital lobe of his brain where there was a circumscribed tumor the size of an average hen egg. His pain had been caused by the glandular involvement, his neurologic signs by the occipital growth, and his mental symptoms very probably from toxemia.

Herpes zoster may begin with unilateral pain, without the appearance of herpetic eruption. It is in this stage that the diagnosis is difficult and often confusing.

The general practitioner and the surgeon are probably less familiar with the symptoms of the vegetative nervous system than the internist and the neurologist. Irritation of the cardiac plexus or reflex constriction and dilatation of the pulmonary vessels, will produce gastric and hepatic symptoms, pain being the outstanding complaint. We are even more likely to have this distressing symptom when the solar plexus is the site of pathology, whether it is structural or chemical. In such conditions as lead colic, pyloric spasm, cardio-spasm, and here again the various tabetic crises, pain is the predominant symptom, probably as a result of irritation of the autonomic nerve fibres.

Vasomotor disturbance and vagotonia are more common than generally thought to be, the former accompanying many functional nervous disorders and the latter as a clear cut entity. These patients are at times a problem for diagnosis with symptoms referable to the cardiac, respiratory and gastro-intestinal apparatus, none of which are sufficient to localize definite organic disease in any of the several regions. Usually they complain of slow pulse, flushing, palpitation, flatulence, marked apprehension and pain anywhere in the alimentary canal between the stomach and the sigmoid flexure. The usual location of the pain is, however, at the ileo-cecal valve, the juncture of the ascending and transverse colon, or the juncture of the transverse and descending colon. In the former instance it simulates appendicitis, while in the latter it simulates gall-bladder, gastric and renal affections.

A few years ago Englebach called attention to pain in the iliac fossa, simulating appendicitis, in patients with an under secretion of the pituitary gland. Some of these cases came

to operation and a normal appendix was found; the pain persisted for sometime after appendectomy and was later relieved by the administration of pituitary extract.

The pituitary gland plays as important a part in uterine pain as do the ovaries, and the writer believes the proper balance of the internal secretion of both glands is essential to normal painless menstruation. Mechanical obstructions are as a rule the common local causes of menstrual pain and when these conditions accompany an endocrine dysfunction, the mechanical feature should be corrected before gland therapy is begun. I have seen many cases of menorrhagia and dysmenorrhoea corrected with pituitary extract alone while some have required ovarian therapy in addition. Inquiry into the history of the patient will in most instances reveal the fact that the menstrual disturbance began in adolescence, but was followed by a period of normalcy, while some years later there is a return of the dysfunction. The physical signs of hypofunction of the pituitary gland and some times the ovaries are usually found upon the examination of the patient.

In the past, unfortunately for the patient, surgical removal of painful cystic ovaries has been a common practice, but today the surgeon guards the future welfare of the individual and resorts to this procedure less frequently. Why should we deprive the patient of an essential gland already functioning too little? What right have we to jeopardize a woman's future nervous and mental health by castration during the reproductive period? The simple watery cysts on the ovaries are as harmless as a sebaceous cyst in the skin unless the cyst becomes pedunculated or otherwise diseased and this is by no means a frequent occurrence.

I have a patient, now 55 years old, who at the age of 18 had painful menstruation, and was advised to have an oophorectomy. This was done and the cystic ovaries removed. She has not enjoyed a healthy day since and has been continuously under a physician's care with a profound psychoneurosis.

Abdominal cramps are experienced by morphine addicts from withdrawal of the drug, through its effect on the vegetative nervous system.

There are some who doubt pain of functional



origin yet a casual perusal of the literature will destroy this doubt. Hysteria forms the greater number of cases under the psychoneurotic group. Gastric, hepatic, intestinal and ovarian crises are frequently observed in neurotic patients. Abdominal pain, nausea and vomiting are the predominant symptoms of many of these patients. Some of them persistently refuse food and show a decided disgust for it; this latter fact is the expression of a psychic conflict, often mistaken for a true symptom of abdominal disease simply because the physician fails to go deeply enough into the history. Other misleading symptoms such as tenderness, general or localized muscular rigidity and localized pain may be present.

Not long ago a hysterical patient who had an endocrine deficiency returned to see me stating that she had become pregnant four or five months before, and during the second month and several times since had severe uterine hemorrhages with uterine pains. Despite the fact that after five months her uterus was normal in size and after a curettage, which was deemed advisable because of the severe hemorrhages, revealed no evidence of foetal tissue, the patient's abdomen had the contour of a seven or eight months' pregnancy. Gaseous distention of the intestinal tract was absent upon passage of the rectal tube; however, inspection of the abdomen revealed a large pone of fat so moulded that it might easily be mistaken for an advanced pregnancy. When she had missed one menstrual period, she was convinced that conception had taken place. The patient, married for many years and aware of the fact that she had an infantile type of uterus, was happy over her condition and shortly developed morning nausea, noticeable enlargement of the breasts and a false appetite. By the third month she was conscious of foetal movements and her appetite had become voracious. Even after she had been assured that she was not pregnant the foetal movements were felt and her abdomen increased in size. The increase in appetite, a lowered basal metabolism and glandular deficiency were responsible for increase in obesity, while the signs of pregnancy were purely psychogenic.

Abdominal pain of psychic origin is not uncommon in mental diseases. A patient may have somatic delusions which impel him to go

from one physician to another attempting to secure surgical relief, but finally his mental symptoms are recognized and he is placed in the proper type of institution. Some psychotic patients have abdominal pain because they believe the food has been poisoned and may vomit each meal or refuse to eat for many days. Somatic delusions referable to the abdomen often appear early in dementia praecox, and as a matter of fact may be the principal symptom.

In the acute maniac and the depressive stages of maniac depressive psychosis pain is not an infrequent symptom, but is usually accompanied by other symptoms suggestive of abdominal disease. Physical examination, gastro-intestinal roentgenographic study and gastric analysis, together with an analysis of the patient's mental symptoms, usually exclude the presence of true abdominal disease.

It is impossible in so short a time to discuss fully all of the neurological conditions causing pain in the abdomen, so I have attempted to call your attention to some of the more common causes, and to a few obscure conditions likely to be overlooked.

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### ACIDOSIS IN DIABETES.\*

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Acidosis is a very grave complication of diabetes and a knowledge of the mechanism of the production, of the various modes of its onset and presentation, of the prevention, and of the treatment are essential in the proper management of any case of diabetes. Acidosis seems to imply a condition of acidity of the blood which we know is incompatible with life, whereas it is in reality an hypo-alkalinity, an alkalinity below the normal, or, more specifically, a ketosis since the substances formed in this condition are derived from a keto-acid.

### PHYSIOLOGY

The alkalinity of the blood is expressed in terms of hydrogen-ion concentration using as Sorenson suggests a logarithmic notation  $pH_{7.4}$ , water being the standard of neutrality with an hydrogen-ion concentration of  $pH_7$ . The reaction of any solution or fluid depends

\*From the Diabetic Clinic of the George Washington University Hospital. Read before the Medical Society of the District of Columbia, February 27, 1929.

upon hydrogen ions and hydroxyl ions. If hydrogen ions are in excess, the solution is acid; and if hydroxyl ions are in excess, the solution is alkaline. Any solution which is acid has a hydrogen ion concentration of less than  $\text{pH}_7$  and is alkaline if the hydrogen ion concentration is greater than  $\text{pH}_7$ . Water is then the standard of neutrality, because the number of free positive hydrogen (H) ions equal the number of free negative hydroxyl (HO) ions.

Hence, excessive acid formation tends to change the reaction of the blood, but this alteration even in severe acidosis (as in some cases of diabetes) is very slight. The reason for this is that the body has a regulating mechanism which protects it from such excessive acid formation. These defense mechanisms are chiefly the sodium bicarbonate content of the blood plasma, the alkaline phosphates of potassium and sodium, and ammonia. These agents are known as the buffer substances and constitute the alkaline reserve of the blood and they combine with any excess acid produced causing their elimination by way of the urine and respiration. This alkaline reserve is spoken of in terms of the carbon dioxide combining power of the blood. The normal carbon dioxide combining power is 52 to 80 volumes per cent. In acidosis this may be as low as 7, although this is evidence of extreme reduction in the alkaline reserve.

It is common knowledge that when a normal subject fasts or when carbohydrate food is greatly restricted in the diet, the so-called acetone bodies, aceto-acetic acid, acetone, and hydroxybutyric acid (b-oxybutyric acid) appear in the urine. In the clinical condition known as acidosis of diabetes, these substances likewise appear in the urine. Two different kinds of food constituents give rise to aceto-acetic acid—the higher fatty acid of neutral fats (chemically known as the straight chain fatty acids with an even number of carbon atoms) and a certain group of the amino acids of protein metabolism such as leucine, tyrosine, phenalanine, and possibly histidine. Hirschfeld in 1895 first showed that the factor common to the condition of and responsible for ketosis is the absence of carbohydrate from the food, or, as in the diabetic, from his metabolism. Carbohydrate has then an antiketogenic or ketolytic function. This idea has been from time to time reinforced so that today there is no doubt but that ketosis is due to a deficiency in

carbohydrate or a failure of oxidation are dehydro-genation, and even more than this, it is doubtful whether any substance not convertible into glucose has been shown to exert direct antiketogenic action.

It seems therefore that in the normal individual there is some chemical reaction between carbohydrate or its metabolic products and the ketone bodies or their precursors; and that in the diabetic individual this chemical reaction fails to take place partially or totally. It is at present accepted that for every one and one-half molecules of fat burned in the body one molecule of glucose is necessary to prevent the production of the ketone bodies with subsequent acidosis.

The exact ketolytic derivative of glucose is not known but the *in vitro* work of Shaffer<sup>1</sup> goes far in determining its identity.

#### CLINICAL MANIFESTATIONS

The classical clinical picture of the onset of acidosis in the diabetic is usually described as being insidious and somewhat vague and may sometimes be overlooked by an expert. It begins usually with anorexia, fatigue, lassitude and irritability with subsequent nausea, vomiting, occasional diarrhea, restlessness, and deep breathing (Kussmaul respiration), in which the rate is not increased. There is marked subsequent extreme dehydration. Occasionally there are no premonitory symptoms, the patient may simply become drowsy, fall asleep, and develop the characteristic symptoms of diabetic coma. Further findings such as normal or heightened color of the skin, dry skin and dry mucous membranes of the mouth, the presence of a fruity odor on the breath, the presence of the ketone bodies in the urine, and a lowered carbon dioxide combining power aid in the recognition of the condition. When coma has already set in, the patient can very frequently be aroused in response to calling by name, the swallowing reflex is usually retained, and the intraocular pressure is considerably diminished. Frequently the onset of acidosis may simulate an acute intra-abdominal lesion of an inflammatory nature by beginning with acute pain in the epigastrium and leucocytosis. This has occurred in our own work and frequently reported by others.<sup>2</sup> but one must not overlook surgical pathology even though acidosis exists.<sup>3</sup> Where acidosis has proceeded to the condition of coma one must, of course, differentiate from other con-



ditions causing coma, though this is usually not difficult. With the knowledge of the severity of acidosis any symptom arising in a patient previously known to have diabetes should arouse a suspicion of its beginning, while further examination and observation will soon confirm or disprove such.

The history immediately preceding the inception of acidosis only too frequently gives a clue to the precipitating factor. Overeating or fasting, long automobile or train journeys, undue mental stress and anxiety, reduction of or stopping the use of insulin, and constipation seem to predispose to acidosis. Any gastro-intestinal disturbance with vomiting will result in rapid production of the condition. Joslin mentions seasickness with vomiting producing the condition.<sup>4</sup> Local or general infection is nearly always in our experience accompanied by acidosis. It is not specifically known how infection acts to produce acidosis but several theories have been suggested. An interference with the production of body insulin, interference with the action of administered insulin with failure of oxidation of carbohydrate, an increase in body glycogen metabolism, either storage in the liver or muscle consumption, are offered as possible explanations of the reaction to infections. Sometimes massive doses of insulin even far above the required amount necessary to burn the entire intake of carbohydrate (1 unit of insulin to 2 grams of carbohydrate) fail to attack the blood sugar and reduce the ketosis. On the other hand, with the removal of the infected organ or the establishment of free surgical drainage the blood sugar estimation begins to decline, carbohydrate metabolism resumes toward normality, and acidosis disappears.

#### MANAGEMENT

*Prophylaxis.*—The proper control of the underlying diabetic condition by maintaining nutrition, maintaining normal blood sugar level, and urine sugar free is the prophylaxis for acidosis. It has been said justly that no diabetic case should die of acidosis. With the exception of the occasional case where infection has advanced to such a point that life is destroyed by it, this statement can undoubtedly be confirmed by our experience. The diabetic patient must avoid undue mental stress, strain and anxiety, excessive physical fatigue, long and tiresome journeys, exceeding the diet, or omitting diet or insulin. He must renounce

foods labeled "good for the diabetic," unless their carbohydrate, protein and fat content is known so that they may be correctly substituted for food already on their apportioned amount. It seems superfluous to say that the insulin when used must be given hypodermically, but sometimes the importance of this is not realized by the patient. One patient was admitted to the hospital with a blood sugar of 1480 milligrams and in severe acidosis. In searching for the exciting factor of this condition we were told that the patient was taking her usual dosage of insulin, but after the patient died we were presented with a large number of capsules of insulin to be used in the free clinic. The prevention of acidosis seems, therefore, to resolve itself into a matter of knowing the proper management for the underlying diabetes and adhering to it.

*Treatment.*—The treatment of acidosis with good results represents to me a remarkable example of a complete reversible process wherein pathology and pathological physiology is attacked in a physiological manner and returned to normal functioning. It is the one outstanding disease in which this is so and where results of treatment are oftentimes miraculous. One begins at the maximum point of disturbed physiology of carbohydrate, protein and fat metabolism even at the point of structural change, and gradually step by step works backward until normal relations of physiology are attained. It is a condition in which theory and practice are equal and the same, where medicine approaches or is an applied science, and where mathematical exactness is required.

With the onset of symptoms a few measures may be adopted which will sometimes greatly relieve the condition and often prevent coma. The patient should be confined to bed, and nursing attendance is almost imperative; drink considerable fluids as water, coffee, tea, or broths, six ounces every hour; evacuate the bowels by use of enemas; give orange juice six ounces at once; give salt solution under the skin; administer insulin 20 units every two to three hours or better still as much as is needed to burn the sugar given, using the blood sugar and carbon dioxide combining power determinations as guides.

More often than not by the time medical aid is sought a pre-coma or coma state has been reached wherein the blood sugar is quite ele-

vated and the carbon dioxide combining power is below 25.

In these cases, hospitalization is absolutely essential and the first twenty-four hours of attention is usually one of a battle between life and death. On admission to the hospital the first hour's therapeutic requirements are numerous. Croton oil in glycerin is administered by mouth 3 to 5 minim doses and repeated in two hours if no evacuation of the bowels has occurred. Salt solution 500 to 1,000 c.c. is given subcutaneously every six hours. Twenty grams of carbohydrate is given in the form of orange juice and repeated every two hours, buffered by sufficient dosage of insulin and usually 20 units is sufficient. Occasionally massive dosage of insulin at the start has been given but this has been found in most cases to be unnecessary. At the end of a six hour regime of this sort, the blood sugar and carbon dioxide combining power should again be determined or one may wait until the urine is sugar free and then repeat the blood chemistry. We feel that, in cases of coma, the carbon dioxide combining power of the blood plasma is the best guide as to the state of the acidosis and further management. The blood sugar often rises even under treatment but if the carbon dioxide combining power begins to rise also then it is felt that progress toward a reversible state is being obtained. If at the end of such a six hour procedure the blood determinations show improvement and clinically the patient seems better, treatment may be continued on a four hour basis, giving carbohydrate and insulin at this interval.

Usually at the end of twenty-four hours the condition will warrant placing the patient on a known weighed diet, either liquid, soft, or even solid food of three meals at the usual time with insulin dosage adjusted to match. It is at this point that often the patient may have a relapse and care must be exercised, although we believe it is advisable to begin such regular feedings as soon as the condition of the patient will permit.

During the first few hours of the acute stage, if the patient cannot swallow orange juice, glucose solution may be administered intravenously. Early in the management one may ignore the administration of protein and fat in the diet but at the end of the twenty-four hour period it is desirable to begin a more or less maintenance diet. The treatment of

the dehydration cannot be emphasized too strongly. One of our early fatal cases of acidosis in a child who died with a blood sugar nearly normal revealed at autopsy no marked pathology except extreme dehydration. We have been so impressed by dehydration and by the improvement in the patient when this is strenuously combated that we attempt to give at least 5,000 c.c. of fluid subcutaneously, in the first twenty-four hours. One case of severe acidosis in a woman received 6,250 c.c. of fluid given by mouth, subcutaneously and by rectum, during the first nine hours in the hospital. The administration of fluids by rectum, either in large quantities to be retained or by the Murphy drip method, is not satisfactory since oftentimes it is expelled, an unknown quantity absorbed, and vomiting may ensue. Fluids given subcutaneously or by mouth, and in children intraperitoneally, are to be preferred.

In severe acidosis the heart muscle is sometimes affected. The heart sounds become distant, pulse rapid, small volume and even arrhythmias may develop. Some advise such medication as digitalis, caffeine, or strychnine but in our own experience the administration of fluids subcutaneously has been sufficient and direct cardiac stimulation has been withheld.

The use of alkalis has now generally been accepted to be of little value in the treatment of acidosis, and even has harmful effects.

In conclusion I desire to summarize and emphasize several points: (1) A knowledge of the underlying disturbances of physiology is necessary for a better understanding of the condition and its treatment; (2) The onset of acidosis is vague and the clinical manifestations are variable so that frequently it is overlooked even by one quite familiar with the condition; and (3) The management is a perfect example of a reversible process and requiring meticulous and continuous application.

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## SOME OBSERVATIONS ON HEMORRHAGE OF SCALP WOUNDS AND LOCAL TREATMENT OF BURNS.\*

By E. L. KENDIG, M. D., F. A. C. S., Victoria, Va.

In these observations there are presented a limited discussion of two disconnected and commonplace subjects.

### HEMORRHAGE OF SCALP WOUNDS

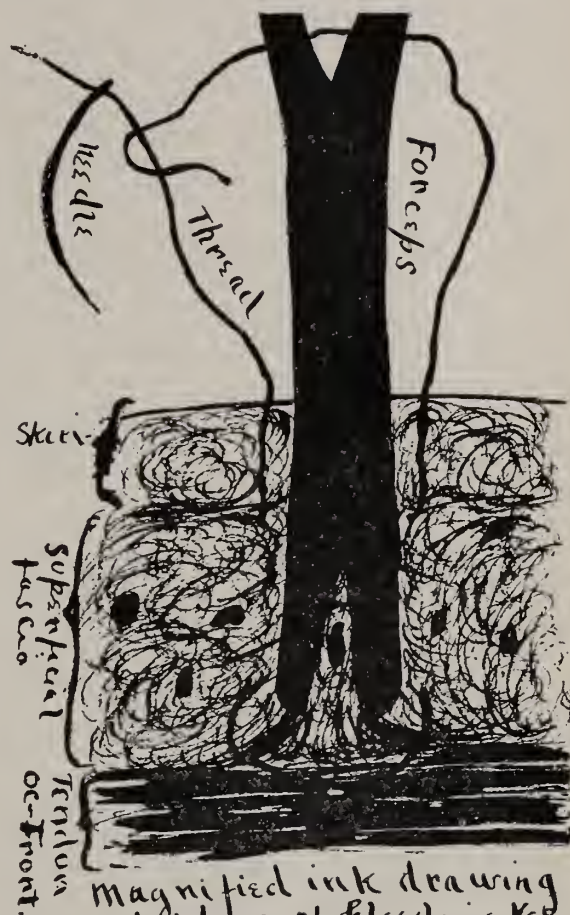
Scalp wounds are numerous in this age of automobiles and industries. Hemorrhage is the most troublesome factor. In controlling this bleeding, the local anatomy should be borne in mind.

The blood vessels of the scalp are large, numerous and anastomose freely, forming a net work in the superficial fascia just underneath the skin. The skin, superficial fascia, and the aponeurosis of the occipito-frontalis or musculo-fibrous layer are very closely bound together. Underneath the aponeurosis of the occipito-frontalis is the subaponeurotic layer which is soft and permits the superficial layers of the scalp to move freely on the pericranium.

Scalp wounds which do not go through the musculo-fibrous layers cannot be pulled apart very easily. When the musculo-fibrous layer is cut, the fibers of this tendon pull the wound wide open. If a wound is sutured before all the vessels are well tied, there will be post-operative bleeding. If the musculo-fibrous layer is divided, this blood will accumulate as a large hematoma in the soft subaponeurotic layer. If the musculo-fibrous layer is not divided, the bleeding will saturate the bandage.

It is most important to tie off the bleeding vessels before any part of a scalp wound is closed. It may be hard to pick up a large blood vessel in a scalp wound with the forceps on account of the profuse hemorrhage. It will be a help to press the finger on the scalp around the bleeder until the bleeding of the vessel is controlled by the pressure. Keep the bleeding controlled in this manner, sponge off wound, and pick up vessel as the pressure of finger is slightly released. The vessel may then be ligated.

By reason of the friability and compactness of the superficial fascia and the size of the artery, it is sometimes hard to tie off a bleeding vessel of a scalp wound. Again, when tied, the suture will easily come off. In case the ligature does not hold, the bleeding may be



Magnified ink drawing of suture of bleeding vessel in a scalp wound.

controlled by picking up the vessel with a little of the superficial fascia. Then pass a curved needle threaded with catgut into the tissue just underneath the skin on one side of the forceps and bring it out just above the musculo-fibrous layer below, taking enough to a bite to hold well. If the bite is not enough to hold, the needle may be passed into a few of the fibers of the musculo-fibrous layer. Reverse the course of the needle on the other side of the forceps, removing the forceps as the suture is tightened. Sutured in this way, hemorrhage is controlled, the suture remains in place, and very little of the tissue around the vessel is strangulated.

### LOCAL TREATMENT OF BURNS

The satisfactory management of a burn is one of the most troublesome in the field of medicine or surgery.

The systemic treatment for this accident, such as the administration of morphine for pain, maintaining body heat, combating

\*Read before the Southside Virginia Medical Association, Farmville, Va., March 12, 1929.

shock, supplying body fluids, etc., are well agreed upon and need not be discussed.

The local treatment is carried out by many different methods. The very multiplicity of methods is an evidence of the fact that none heretofore have proven uniformly satisfactory. The following are the main objects in the local treatment of a burn:

1. Provide a protection for the injured surface. This should be provided for in any plan of treatment contemplated.

2. Relieve pain. The intense pain from a burn calls for quick relief.

3. Prevent toxemia. Burned tissue is toxic and the control of absorption from the burned area should be provided for in the treatment.

4. Stop the loss of body fluids. The loss of body fluids, especially in severe cases with shock, must be prevented, if possible.

5. Keep the wound aseptic. Sepsis in a burned wound is one of the frequent and serious complications. It prolongs recovery, it may be the cause of cellulitis or septicemia and will result in more contractures and scars.

6. Use remedies and accessories which are safe, available, and within the means of the patient. A large percentage of burns are treated at places where the facilities are more or less limited.

7. Select the method easily carried out by attendants. The results of a case depend very largely upon how well the treatment is carried out.

8. Prevent contractures and scars. After saving the life of the patient, the prevention of contractures and scars is one of the important things to be considered.

The numerous methods of treatment used to meet these indications and conditions fall into the following general classifications:

1. The local use of protective aseptic or antiseptic oils and ointments. This consists of using on the wound an oily covering, such as a mixture of lime water and linseed oil, zinc oxide ointment, boric acid ointment, and their various combinations, and proprietary ointments.

2. The application to the wound of a 10 per cent solution of bicarbonate of soda. This solution is kept continuously on the wound either by immersion or the use of a spray.

3. The covering of the wound with a crust produced by spraying over the surface hot melted paraffin, commonly known as the "am-

brine method." This crust forms a covering over the wound and no other dressing is used.

4. The excision or debridement of the injured tissue in the burned area. The work in connection with excision of the burned tissue was very ably brought forward by Willis. It was through these experiments that the toxic effect of burned tissue was demonstrated.

5. The spraying or painting on the burned surface antiseptic drugs which coagulate the albumen and contract and fix the tissue. The drugs used for this purpose are alcohol, aluminum acetate, picric acid, and tannic acid. This fixing of the tissue forms a tough leathery crust over the wound. No other dressing is used. The crust is removed usually in from two to five weeks. If the wound is superficial and infection does not develop, it will be healed over when the crust comes off. If the wound is deep or if infection develops, a granulating surface will be left after the crust is removed.

As a fixing drug in the treatment of burns, alcohol is used in full strength. Aluminum acetate is employed in a 2 per cent alcoholic solution mixed with a 2 per cent solution of methylene blue in proportion of 10 to 1. Picric acid is used in a 5 per cent alcoholic solution. The tannic acid treatment consists of using a 2½ per cent to 5 per cent aqueous solution. We find also that a 7½ per cent solution of tannic acid is advantageous in some cases.

The method of treatment selected should be the one that will give the best results under the circumstances.

The use of aseptic or antiseptic oils and ointments does not prevent toxemia, nor stop the loss of body fluids. The numerous dressings are troublesome and expose the wound to infection.

The use of continuous applications of 10 per cent solution of bicarbonate of soda does not provide a satisfactory covering for the wound nor protect it against bacterial invasion. It is a cumbersome method and one that is not easily carried out by attendants.

The use of the "ambrine method" or paraffin spray requires a number of reapplications and is troublesome to both patient and attendant. These reapplications are usually made necessary by development of infection underneath the paraffin coating.

The excision or debridement of injured tissue leaves an open wound to be dressed and



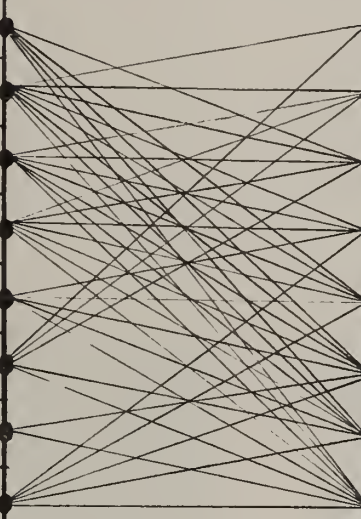
necessitates an operation which we usually avoid if possible.

The use of a drug which coagulates the albumen and fixes the tissue more nearly meets the conditions and indications of treatment than the others. Alcohol is usually hard to get, painful when first applied, and slow in action. The aluminum acetate solution is

treatment in maintaining asepsis. In addition to this, according to Montgomery, sepsis is avoided by the dry coagulant which forms an unfavorable nidus for bacterial growth.

6. No special apparatus is needed in carrying out the treatment.

7. The acid is cheap, readily procured and easily prepared. If kept in solution, it will

EFFICIENCY CHART SHOWING APPROXIMATELY RELATIVE VALUE OF DIFFERENT METHODS OF LOCAL TREATMENT OF BURNS			
OBJECTS — LOCAL TREATMENT OF BURNS		METHODS — LOCAL TREATMENT OF BURNS	
(1) PROTECT BURNED SURFACE		(1) LOCAL USE ASEPTIC and ANTISEPTIC OILS	25%
(2) RELIEVE PAIN		(2) APPLY 10% SOL. SOD. BICARB.	50%
(3) PREVENT TOXEMIA		(3) MELTED PARAFFIN METHOD	62½%
(4) STOP LOSS BODY FLUID		(4) DÉBRIDEMENT OF TISSUE	62½%
(5) KEEP WOUND ASEPTIC		(5) FIXATION DRUG (Alcohol)	75%
(6) USE AVAILABLE REMEDIES		(5) FIXATION DRUG (Alum. Ac.)	87½%
(7) EASE and SAFETY OF ADMINISTRATION		(5) FIXATION DRUG (Picric Acid)	87½%
(8) PREVENT SCAR TISSUE		(5) FIXATION DRUG (Tannic Acid)	100%

troublesome to prepare and does not fix the tissue as satisfactorily as some others. The solution of picric acid has a tendency to stain the surrounding parts and the bed clothing and there is danger of poisoning from absorption.

The use of tannic acid solution more nearly meets all the indications and conditions in the local treatment of burns than any other one of the methods. Its use results as follows:

1. The tough crust produced by tannic acid provides protection for the wound.

2. It relieves pain. Wilson and Davison say that the outstanding feature of tannic acid for burns is the relief from pain.

3. By fixing the tissue, it prevents absorption and limits toxemia.

4. It prevents loss of body fluids.

5. It is conducive to asepsis. It possesses the advantages of the other fixing methods of

form gallic acid. For this reason it should be made fresh for each case. One teaspoon of the acid to four ounces of water will make a 2½ per cent solution. The proportion can be changed to make a stronger solution.

8. Its application can be made by any good attendant.

9. It results in a minimum scar and contracture formation. Davison concludes that less scar tissue is found in the use of tannic acid because there is less infection and a smaller amount of irregular granulation, and the crust acts as a bridge for the superficial spread of the epithelia.

Davison recommends a 2½ per cent solution of tannic acid applied every hour. He found that a good thick brown leathery crust would in this way be developed in fifteen to twenty-four hours. He used gauze on the wound when

applying it. Later he moistened the gauze and removed it. The burned surface is at first protected by a tent or cage which does not touch the wound. Montgomery uses a 5 per cent solution and sprays it directly on the wound without the gauze and says that a satisfactory crust is procured in a shorter time. We have used a  $7\frac{1}{2}$  per cent solution. We commenced the use of this solution on ambulant cases. This stronger solution will form a satisfactory crust in ten to twelve hours. This is an advantage as it makes the number of hourly applications less.

We have treated the industrial injuries of a large corporation for twenty years. A large number of these cases were burns. The records of these cases and others together with those of our hospital show the treatment of 420 cases of burns of varying degrees. These cases have been treated by all the various methods except debridement. Our experience with the tannic acid treatment for burns started 12 months ago and includes twenty cases. The results are in line with those reported by Bancroft and Rogers and a number of others. We can say that we share their opinion that this method is a real advance in the treatment of burns and, moreover, we find that a  $7\frac{1}{2}$  per cent solution of tannic acid can be used advantageously in those cases where it is necessary or more convenient to produce the protective crust in a shorter time.

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### HYSTEROSALPINGOGRAPHY.

By  
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Hysterosalpingography grew out of attempts to determine the patency of the Fallopian tubes. The steps are briefly as follows: Le Lorier, in 1912, made intra-uterine injections of electrargol. Dimier was the first to use the X-ray in connection with the injection of a radio-opaque fluid, but the work was abandoned on account of the death of a patient from peritonitis. The scene then shifted from

France and an American published the first radiographs of the uterus and tubes. Following Cary's work, Rubin made many radiographic studies of these organs, using first collargol, as Dimier and Cary had done, and, later, the citrate of thorium and the bromide of sodium. In 1923, Kennedy reported some interesting results, using sodium bromide, but it was not until the appearance of Heuser's work with lipiodol, in 1924, that much notice was taken of this method of investigating the uterus and tubes. In 1925, Heuser demonstrated his hysterosalpingograms in Paris, and following this there appeared a series of beautiful publications by Mocquot, Gregoire, Bécère and Darbois, Cotte and Bertrand, in France; Dyroff, Arnstam and Reinberg, Schneider and Eisler, and Schultze, in Germany; Forsdike, in England; and Newell, Randall, Jarcho, Stein and Arens, and McCready and Ryan in this country.

#### TECHNIQUE

The patient is given  $1/6$  grain of morphin and  $1/200$  grain of hyoscin, and is prepared locally as for delivery: shaved, soap and water scrub-up, bichloride rinsing, and painted with



Fig. 1.—Hysterosalpingogram of normal uterus and tubes. Note the triangular form of the uterus, the tubal sphincter at the left cornu, and the "beaded" appearance of the lipiodol in the ampula of the tube. This uterus emptied itself completely of the oil in a few minutes after the patient had been allowed to sit up.

a 2 per cent mercurochrome solution. A bivalve speculum is then introduced into the vagina, and the vagina is filled with mercurochrome solution. A sterile pad is now applied and the patient is moved to the X-ray department. A metal cannula, such as is used with



the Rubin apparatus, is introduced into the cervix under the guidance of the eye. A 20 c.c. Luer syringe filled with lipiodol is attached and the fluid is injected under moderate pressure. In nulliparae it is often easier to make the injection with the patient in a ventral Trendelenberg or modified knee-chest position. A single blade perineal retractor is then used in place of the bivalve speculum. The injection is stopped when the patient complains of cramps or when resistance is encountered.

The radiographic technique is as follows: 30 milliamperes, 5 inch spark gap, with variations in time according to the thickness of the patient. Exposures are made in at least three different positions: in the dorsal, the ventral position, and in the Sims' position. The first exposure is made after the solution has had time to pass out into the tubes. The second exposure is made immediately afterwards, usually with the patient in the Sim's position. A third exposure is made five to ten minutes after the patient has been allowed to sit in the erect posture.

#### DANGERS

The dangers that are to be thought of in connection with this method are (1) infection; (2) carrying metastases of uterine desidua or new growths into the peritoneal cavity; (3) embolus; (4) rupture of the tubes. All but the first are purely theoretical dangers, no instances of such occurrences having been reported. The risk, however, of causing a peritonitis is a real one, especially if the injection be made in the presence of acute inflammation in the adnexa or a purulent discharge from the cervix, or if there be a careless technique. The chief objection to following the progress of the injection with the fluoroscope is that in the darkness one is more apt to have lapses in strict asepsis.

#### USES

Whenever a picture of the interior of the uterus and tubes is helpful, hysterosalpingography is indicated. It has already cleared up many questions in physiology. Peristalsis of the tubes has been clearly demonstrated by Rubin, Dyroff, Arnstam and Reinberg, and others. A sphincter-like action at the uterine end of the tubes can be shown in many films. The evidence that has so far accumulated seems to show that the uterus contracts *en masse* and

symmetrically, except in pathological conditions.

The value of hysterosalpingography in the study of sterility is generally accepted. The injected tubes stand out prominently and if there is any doubt as to their patency, a film twenty-four hours later will settle the question definitely by demonstrating lipiodol in the peritoneal cavity. If the tubes are closed, the site of the occlusion is accurately shown. Randall, of the Mayo Clinic, says that hysterosalpingography shows the uselessness of attempting operative intervention in six out of seven cases of sterility from closed tubes. Just as in the case of the Rubin test, this procedure, while undertaken primarily as a diagnostic method, may prove to have a therapeutic virtue. There have been several reports of pregnancies following hysterosalpingography in cases in which all the usual treatments for sterility had failed. Two of our cases of sterility, of many years' duration, became pregnant after injection of lipiodol.

The place of hystero-graphy in the diagnosis of early pregnancy is not so well established. There is no question about being able to make



Fig. 2.—Early pregnancy, filling defect on the posterior wall. The left tube did not fill. The right tube shows a well marked sphincter.

a positive or negative diagnosis by this method. The question is rather one of advisability. In those cases in which the interruption of pregnancy is indicated, if it be present, there can be no question as to its usefulness. In such cases it has both a positive and a negative value. Several times we have avoided unnecessary curettements in tuberculous persons by this means—women who,

after a visit home from a sanatorium, had missed a period and were having nausea or other suggestive symptoms.

The effect of injection of lipiodol into a pregnant uterus is an interesting question. Heuser is emphatic in his statement that it does not interrupt pregnancy. The isolated cases reported by Dyroff, Jungmann, Arnstam and Reinberg, Schneider and Eisler, Ott and Van der Elst, and Gautot rather support his opinion. Haselhorst reports the occurrence of high fever, abdominal pain and abortion on the fifth day after the injection of iodipin. Miller and Martinez, of Pittsburgh, abandoned the method because in their hands it produced abortions. Our own experience consists of twenty-seven cases, three of which were bleeding when the injection was made. One of these cases of threatened abortion aborted two days afterwards without further complication. A second one aborted forty-two days after the injection. The third case of threatened abortion went to term and was delivered of a boy that was normal in every respect. None of the other cases of pregnancy aborted spontaneously. Some have not had sufficient time for delivery, and the others have gone to uncomplicated full term deliveries with normal children. Steinhart and Brown also report the birth of a normal infant after hystero-graphy early in pregnancy.

In cases of ectopic pregnancy, hysterosalpingography may be an aid in the diagnosis. A demonstration of an atonic uterus without a filling defect in the uterus and one of several characteristic filling defects in one tube is very suggestive. The condition that may simulate this picture is that of a tubal abscess, especially a post-abortion one. In a case that one of us saw in consultation with Dr. James Whitfield, Jr., the diagnosis rested between a threatened abortion and an ectopic pregnancy. Hysterosalpingography showed the pathology to be in the uterus, and subsequent events proved it to be a hydatidiform mole. It shows what we now believe to be a characteristic picture with smooth, rounded filling defects. So far as we can determine, this picture is unique.

Hystero-graphy is invaluable in studying abnormalities, such as bicornate uterus. Van der Elst and Gautot picture a bifid uterus whose external appearance even at operation gave no indication of the anomaly. Likewise,

fistulae of the upper genital tract are shown more clearly by this method than in any other way.

The presence and situation of retained portions of the placenta and of submucous tumors is well indicated. The nature of the mass causing the filling defect, of course, cannot be



Fig. 3.—Myomatous uterus in a woman 55 years of age, showing large uterine cavity. The appearance of a filling defect in the upper part of the uterus is caused by the available supply of lipiodol not filling the cavity completely.

stated definitely without the help of the history of the case and the physical examination. Retained portions of the placenta are said to be associated with abnormal contractility of the uterus. In the only case of the kind that we have had such was not the case. Van der Elst and Gautot stress the point that fibroids of the uterus, whether they be submucous or not, are associated with enlargement of the uterine cavity. When there is a carcinoma present, the outline of the filling defect has an irregular moth-eaten appearance. It should be remembered, however, that the presence of blood in the uterine cavity gives very irregular outlines to the shadow.

Intramural or subperitoneal fibroids are suggested by an irregular and enlarged uterine cavity, and possibly by displacement of the organ. Cases have been described in which the uterine cavity held 60 c.c. of oil. Ovarian cysts usually cause a displacement of the



uterus and a characteristic extension of the tube. There is also often a marked increase in the contractility of the uterus. Intraligamentous tumors may cause a marked elongation of the cervix uteri.

Inflammation of the adnexa is accompanied by a closure of the tube on the affected side and often a displacement of the uterus. A hydro- or pyo-salpinx shows as a rounded dilatation at the occluded extremity of the tube. There is a characteristic absence of all evidence of peristalsis in the affected tube.



Fig. 4.—Small anteverted senile uterus, showing one tube closed at the fimbriated extremity and the other at the uterine end. There was no oil in the peritoneal cavity when filmed the next day.

Our own experience consists of seventy-seven injections, as follows: pregnancy twenty-seven; non-pregnant twenty-one. Two of these cases were definite pseudocyesis, one of which we were able to convince she was not pregnant by showing her the films. There were sixteen for sterility, in six of which both tubes were blocked and two had one tube blocked. There were two pregnancies complicated by fibroids. There was one case of suspected ectopic in which we made a negative diagnosis. One case of bleeding uterus with suspected submucous fibroids was encountered in which we made a negative diagnosis. Later this was confirmed by hysterectomy.

In conclusion, we feel that hysterosalpingography is a safe procedure in the hands of one acquainted with gynecological operations. It should be carried out in a hospital and, of course, under strict asepsis.

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## PREVENTIVE SURGERY.\*

By J. E. MARABLE, M. D., Newport News, Va.

In the past decade much has been said and written and a great deal done in regard to preventive medicine. Construed in its broadest sense, this, of course, includes preventive surgery, and the practice of hygiene and maintaining health will at times demand the application of surgery, preventive or curative. The author holds the view that, for ordinary

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purposes, the less distinction made between medicine and surgery the better for all concerned. All practice of medicine is not surgery but the practice of surgery is the practice of medicine as the term is generally understood. The internist needs the surgeon frequently, but the surgeon, if he is to be successful, must have a great deal of the knowledge of the internist in his brain, his eyes, and his finger-tips. However, it seems that the burden of stress has been applied to the purely non-surgical aspects of prevention of disease, and a discussion of some phases of preventive surgery might not be amiss.

The term preventive surgery, without qualification, might sound paradoxical but by this term is meant, in this discussion, the application of surgical measures, operative or non-operative, to benign conditions and incipient diseases before surgery is demanded as an emergency or life-saving procedure, in which event it is too frequently only palliative and often fails to postpone death.

Sir Berkeley Moynihan, in his address on "Before and After Operation," says, in effect, that it is hardly conceivable that the future progress of surgery is going to be along lines of improvement in actual technique. The skilled surgeon of today, he believes, has about reached the peak of human possibility as far as manual dexterity is concerned. Where there is room for improvement and its most urgent need is in earlier diagnosis and in supplanting mechanical operations with some method of treatment or prophylaxis that will render operative surgery unnecessary. Every real surgeon likes to operate. That is the phase of surgery to which most of his training has been devoted and is where most of his proficiency lies, but the surgeon of the future, or man of healing, if the former be contradictory, will be called upon more frequently to prevent than to perform operative surgery.

That, however, is an ideal that is far, far in the future. Preventive medicine, radio, moving pictures and newspapers cannot reform human nature in a generation and the laity are not seeing eye to eye with the physician in accepting campaigns for improvement of their health as altogether altruistic. Until the average intelligence is raised higher than it is at present, we must content ourselves with examining periodically the comparatively few who appreciate the value of it

and keep in readiness the proverbial "nine stitches" for those who do not believe in the old adage.

It is not the purpose of this paper to advocate wholesale, meddlesome, and unnecessary surgery, but rather to discuss and emphasize how, frequently, a simple procedure in a comparatively healthy patient is safer, and more permanent in its results, than is a more radical operation performed upon an undernourished, anemic individual, wracked by pain, loss of sleep, and starvation, who has been reduced to the need of emergency surgery by neglect or procrastination.

Before considering specific conditions, let it be understood that by surgery, in this discussion, is meant not only cutting with a knife but any manipulative, mechanical procedure, or use of surgical judgment that requires a certain degree of skill in its application—be it pulling teeth, passing a catheter, setting a fracture, or keeping a neurasthenic off the operating table.

To consider first the probably most common surgical condition that confronts us—appendicitis: Willis says that the mortality of this condition has not decreased in the last few years. Be that as it may, any surgeon knows that the mortality and morbidity attendant upon what should, under ideal conditions, be a relatively simple procedure, is far too high. This can be reduced by the application of preventive surgery. Most emphatically it is not recommended that appendectomy be done on every patient who has right-sided abdominal pain and the differential diagnosis of appendicitis, acute, sub-acute, and chronic, from other diseases is not always simple. However, we can be reasonably certain in a large percentage of cases and, if the diagnosis is not clear, we can at least refrain from treatment that might be harmful. The administration of purgatives to patients suffering from undiagnosed abdominal pain is a pernicious practice that is not altogether confined to the ignorance of the laity. Any therapeutic measure, applied to an undiagnosed condition is a shot in the dark, and "masterful inactivity" should be our attitude in acute abdominal conditions until the diagnosis is established. This inactivity is often difficult in the face of pain and the entreaties of the patient and his relatives, but it does a great deal less harm than unwarranted administration of drugs given

just to be doing something for the patient. Once the diagnosis is established, it should be made clear that there is only one treatment—surgical removal of the appendix—and any responsibility for delay or refusal of operation should be placed squarely upon the patient or his nearest relative. When this attitude is adopted by the profession, the mortality and morbidity of appendicitis will be reduced.

A second surgical condition in which the early application of a simple operative procedure may prevent serious complications that entail loss of health, time, and possibly life, is one of the penalties that woman pays for mothering the race. I refer to laceration and the attendant erosion of the cervix uteri. In its mildest form it is uncleanly and disagreeable; in its worst it is a potential seat of a focus of infection or malignancy. If not of too long standing, the repair is simple. The application of a cautery destroys the infection and attending cystic degeneration that is so frequently present. Excision of the burned area and old scar tissue, followed by a trachelorrhaphy, gives a striking and satisfactory result. Preventive surgery can go far in remedying this condition by demanding routine post-partum examinations and early repair. The physician who says that he never has lacerations does not use a vaginal speculum and a good light.

Another relatively common condition for which early surgery offers relief and hope of life is renal tuberculosis. In its incipency this condition is generally unilateral and the removal of the diseased kidney gives, in a large proportion of cases, a reasonable hope of saving the other kidney and life. But how often do we see these cases after both kidneys have become involved and the best that we can offer the patient is a few months or years of uncomfortable and painful existence! How many cases of cystitis, pyelitis, and unexplained hematuria do we treat symptomatically until pain and emaciation force us to seek to determine the cause of the condition?

Preventive surgery could do much to reduce the mortality and morbidity of peptic ulcer. It is highly probable that a fairly large number of undernourished, semi-invalid individuals suffering from chronic indigestion are harboring gastric or duodenal ulcers which a careful and complete examination would re-

veal. Granting the advisability of trying medical treatment in selected cases, an elective operation on a prepared patient is always preferable to an emergency procedure on a shocked, bleeding patient whose need is imperative.

Another field in which the early institution of treatment would prevent invalidism and prolong many a useful male career is the condition of prostatic hypertrophy. This probably, next to laceration of the uterine cervix, is the most neglected phase of surgery to which early intervention is so highly applicable. Most of these individuals first consult a surgeon in the sixth, seventh or eighth decades with complete retention, arteriosclerosis and damaged heart and kidneys. They have suffered months or years of catheterization, discomfort, and pain. In their extremity their only relief lies in weeks in a hospital and a hazardous operation which brings a delayed comfort to the short period of their remaining span of life. A careful history and a rectal examination on all males past forty, or even thirty-five years of age would detect a number of these cases early. While the vast majority would probably not be operated on at these ages, they and their physicians would be on the alert to forestall the end-result that so many of them face.

The various campaigns for the control of cancer have taught the profession, and to some extent the laity, the need for early intervention in cases of neoplasms of various sorts. Still, however, too many consult the surgeon after the border-line of operability is past, so there is further need of education along these lines. We all know that here is a field where preventive surgery is the whole secret of even a meager degree of success.

It has been said and implied in many ways that the exit of the alimentary canal is one of the most neglected portions of the body. It is certainly true that diseases which affect the rectum and anal canal are usually of long standing before relief is sought at the hands of the surgeon. Comparatively simple things like fissures, fistulae, ulcers and hemorrhoids are allowed by patient and physician to stand over periods of years before the conditions are relieved by surgery. Frequently an abscess or thrombosis is the climax that forces the patient to seek relief. The application of preventive surgery here would not only afford a



great deal of comfort to these sufferers but would be an economical and physical benefit and a safeguard against more serious complications. Cancer of the rectum when diagnosed early is one variety of this condition which most admirably lends itself to permanent cure. Digital examination on all patients giving any symptoms referable to the lower alimentary tract would diagnose a number of these cases before the stage of safe operability is past.

Focal infection has been discussed so widely that it is hard to add anything new to the voluminous literature about it. However, here lies a field in which the application of early preventive surgery is highly desirable, and, in fact, absolutely essential if we are to obtain the best results. If infected teeth, tonsils, sinuses, prostate, or what not, are giving rise to remote symptoms, it is reasonable to suppose that if the primary foci are not treated, secondary foci will be established and permanent relief will become more and more difficult to obtain. The question of whether remote symptoms are due to the actual invasion by bacteria or to the absorption of toxins has been previously discussed by the author and others but, whichever is true, it is certain that the earlier an offending area is treated or removed the better and more permanent the end-result will be.

So on, *ad infinitum*, the wisdom and practicability of early intervention in those diseases in which surgery is applicable can be demonstrated. Whether the condition be diseased tonsils, or hare-lip, appendicitis or cancer, early surgical intervention at an elected time and place, with the patient prepared for the procedure, is a safer, sounder policy than a forced operation when and where it must be done after the condition has been augmented by additional infection, hemorrhage, shock, starvation, or what not. The needs are so obvious that it sounds trite at this time to emphasize them further but experience and hospital records show us that it is necessary to keep ourselves reminded of the obvious, and that reading and believing accomplish little unless we act. All of this provokes an obvious rejoinder. Grant that careful histories are taken and careful and complete examinations made on available patients, and we shall still have two adverse factors which largely defeat our purpose. First, only a small proportion of the more enlightened are going to present

themselves for study until forced to do so by pain or other dire extremity. The man who carries his automobile to the shop when he hears the slightest deviation from its normal rhythm, will drive his car all day with a pain that has to become terrific in intensity before he parks before a physician's office. Second, out of the few who do present themselves for periodic examination, or because of early and mild symptoms, still fewer are going to submit to radical procedure while their ailments are, to them, trivial and endurable. It is perfectly clear that most of the delay and lack of application of preventive surgery is not necessarily traceable to the physician. What, then, is the answer? In one word—education. Various organizations, insurance companies, the American Medical Association, some sectional and local medical societies are helping and have probably done a great deal, but the individual physician must help too. His patients must be taught that surgery is not necessarily the last resort but frequently the safest; that a hospital offers facilities for diagnosis and treatment that cannot be maintained in the home or office; that the standing joke that "the operation was a success but the patient died" is often a tragic truth because the patient literally committed suicide by procrastination before the operation was performed. And last, early elective surgery, when indicated, saves life, suffering, time and money.

105 *Thirty-Second Street.*

### PURULENT APPENDICITIS, WITH RIGHT LOWER LOBAR PNEU- MONIA—WITH REPORT OF THREE CASES.\*

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For the last thirty years, some phase of appendicitis has been discussed at almost all medical and surgical gatherings and has appeared at frequent intervals in the literature. Yet, I scarcely think enough has been said on the subject—at least, it has not been said to the proper persons, in the proper way, about this extremely common condition, which is still so badly handled in a large proportion of cases. I do not recall ever having seen more than one or two cases of appendicitis who had not had their preliminary purgative. Neither have I noticed any part of the various Health Educational Programs for the public that have

\*Read before the South Piedmont Medical Society.

been given over to stressing the grave danger of purgatives in the presence of abdominal pain.

I feel that I need make no apology for introducing the subject again, at this time, when it and its many complications still rank high among the killing maladies that affect the human race.

In looking over the records of the Southside Community Hospital, at Farmville, which has been open just one year and is situated in a small country community serving a portion of the population of nine counties, I find the total admissions of patients for all causes are 632; of these, 85, or 13½ per cent, were admitted for appendicitis. Of these, 63, or 10 per cent of the total, were acute cases. Of the 63 acute cases with suppuration, 3 cases had, at the time of admission, an acute condition in the right lower lung simulating a typical lobar pneumonia.

Since the days of Hippocrates, the iliac passion, with swelling, has been described as being bad; and let me say here that when the "iliac passion" is accompanied by lower right "lung passion," it makes the situation very bad, especially from a diagnostic and procedure standpoint.

*Case 1.* White, male, 19 years old, was admitted to the hospital on August 15, 1928. Was then in the fourth day of a typical attack of acute appendicitis. Patient had typical general abdominal pain at the beginning, with vomiting, soon localizing on the right side about two inches above the usual point of the typical appendix pain. Examination revealed spasticity of the entire right abdomen, upper and lower quadrant, and absent breath sounds at the base of the right lung, with increased vocal fremitus, pain intensified by deep breathing, fever 102, pulse 120, and respiration 25. The urine showed few pus cells; leukocyte count 17,400, 85 per cent polys. The preparation for operation was held up temporarily when the condition in the right chest was found, but an hour later it was decided to operate for the abdominal condition, in spite of the lung condition. He was operated on two hours after admission and a very foul, ruptured, gangrenous appendix removed, which was in a cavity which contained two ounces of pus, up behind and external to the colon. Two days following the operation patient had continued quite sick, and all of the classical symp-

toms of lobar pneumonia were present, together with the findings of increased whispered voice, crepitant rales, etc. Three days after the operation patient had a decided fall in temperature and pulse rate, and appeared distinctly improved. From then on until his discharge, on the thirteenth day following operation he made the usual recovery expected after drainage appendectomy. His lung condition underwent complete resolution and there was no untoward effect. However, he returned to the hospital at the end of two weeks for a Dakin's irrigation of an unhealed appendix sinus, which cleared up and healed entirely within ten days after re-admission. He has not had any further trouble with the lung condition, and has been steadily at work since.

*Case 2.* White man, age 74 years, was admitted to the hospital on October 28, 1928, thirty-two hours after the beginning of a typical attack of acute appendicitis. Temperature 100.6, pulse 90, and respiration 20. The urine showed a trace of albumin and many hyalin casts; leukocyte count 11,000, with 83 per cent polys. This patient had had morphine previous to admission and the abdominal condition was somewhat obscure. There was no muscular rigidity, but tenderness to deep pressure just below McBurney's point. An examination of the chest revealed very distant breath sounds at the right base, which was commented on by the resident physician. Though we were somewhat doubtful as to the correct diagnosis in this case, his family physician, who had attended him and who had seen him before he had had any morphine, was so positive of the diagnosis that we operated within two hours after admission. A very acutely inflamed appendix was removed, which was adherent to the posterior abdominal wall, behind and external to the cecum, with a very small gangrenous spot near the tip, at the junction of the mesentery with the appendix. The abdomen was closed without drainage. The next two days the patient was quite sick, became jaundiced, and the urine contained bile for 24 hours. The second day after operation the pneumonia findings at the right base were quite typical. On the fifth day following operation he had a decided drop in temperature and pulse rate and began to improve. His maximum temperature was 103, pulse 110, and respiration 28. From the sixth day to the fifteenth day following operation



he had an irregular afternoon rise of temperature, one time reaching 102, which we thought was partly due to the lung infection and to the wound infection, which sloughed in the center with a typical B-coli infection. From the fifteenth day his temperature did not rise above normal at any time, and his condition was well enough for him to go home, but he asked to be allowed to remain in the hospital another week on account of inconvenient home surroundings, and then he went home perfectly well.

*Case 3.* White boy, age six, came into the hospital in the sixth day of an attack of an acute purulent appendicitis, temperature 103, pulse 160 and respiration 40. Urine showed trace of albumin, acetone and diacetic acid, and few pus cells; leukocytes 20,000; 91 per cent polys. Examination showed the whole right abdomen in board like rigidity and extremely tender. Chest showed atypical signs of pneumonia developing in the right lung. These signs were so marked that it was thought advisable to make a X-ray plate of the lung. This showed a large area of consolidation at the right base and marked induration extending up along the bronchi, as high as the apex. There was so much lung involved in this case and the patient was so sick, that we cancelled the operation and put him to bed under an expectant treatment. The chest condition progressed, but findings were very atypical for pneumonia. The temperature, pulse and respiration remained about the same. On the sixth day in the hospital and the eleventh day of his illness, his temperature took a more or less sudden fall to 100, his pulse to 120 and his respiration to 35. The abdominal condition became slightly softer and less tender. There were signs of fluid developing in the chest and also of slight pneumothorax. His temperature again went up to 103 and we decided to aspirate. 750 c.c. of milky pus with a strong B-coli odor was aspirated, with some air. On November 9, 1928, the eighth day in the hospital and the thirteenth day of his illness, we resected one and one-half inches of the seventh rib and established drainage. This point of entrance was just above the lower wall of the abscess cavity and adhesions were well formed so that there was no collapse of the lung. This case was unusual in that there was no cough at any time and no sputum. Conclusions were that there was a lung abscess

formed near the base, close to the pleura, walled off away from the bronchi, then rupturing into the pleura and becoming walled off there. After the operation, the drainage was profuse and his temperature and pulse remained about the same, running an irregular course, going between 102 and 103 each day, after which it dropped at some time during the day to 99 up to the twentieth day in the hospital. Since then the curve has been getting lower. This patient is still in the hospital and his maximum temperature has not been above 100, running from that point to normal during the last five days. The abscess is getting smaller, the drainage less, and the abdominal condition has gradually subsided. There is very little tenderness over the right abdomen. It is probable that this abscess may have ruptured into the bowel and drained and then gotten well. The possibility of the abdominal abscess burrowing up and rupturing into the pleura was considered, but the findings and the course of this condition do not indicate that this could have happened.

#### DISCUSSION.

It appears that lung infections accompanying purulent abdominal condition are metastatic in origin, and are frequent in occurrence, having been found three times in sixty-three cases. The age of the patient seems to have no bearing on the condition; neither does the amount of suppuration within the abdomen have any bearing on this.

Of the three cases reported, the appendices of the two that were operated on were turned upward and were adherent to the posterior parietal peritoneum. The case that was not operated on indicated the same position of the appendix, so that this might have some bearing on favoring metastasis. I think it is unquestionably a blood stream metastasis, via the mesenteric, then the portal vein, then on and lodging into the terminal arterioles of the lung.

As to the effect of anesthesia on pneumonia of this type, one case had straight ether, which was borne well. The second case had mostly gas with a small amount of ether, which was borne equally as well. The third case, which had the greatest involvement of the lung and which appeared the sickest of the number, had no anesthetic at all. These cases, as well as other similar cases taking anesthetics, lead me

to believe that ether does no appreciable damage to acute respiratory infections.

Two of these cases could easily have been overlooked as to their chest findings, and the classical signs of pneumonia, which appeared the second or third day, could have been ascribed to the anesthetic and called an ether pneumonia. We are all familiar with the right lower lobar pneumonia with referred pain to the right abdomen, which has come in for an operation for appendicitis, or gall-stones; and I believe a large percentage of the so-called ether pneumonias have been cases of this type, either with or without suppuration of the appendix at the time of operation, where the lung findings had been overlooked. These cases are very difficult as to a positive diagnosis and also as to the recommendation for operation. I believe the proper procedure, in spite of the lung condition, is to operate and establish free drainage, remove the large focus of infection in the abdomen, and let the pneumonia, with the proper supportive treatment, take care of itself. I feel that I made a mistake in cancelling the operation in the third case, even though he was much further advanced on admission. I believe if his abdomen had been opened and the gangrenous appendix had been removed, and free drainage established, his lung condition would not have gone to suppuration and rupture.

The first two cases operated on were thought to have had bacillus coli odor on the breath. However, it was hard to be positive about this, since the whole room was filled with odor from the drainage appendix, but certainly the bacillus coli found in the third case of lung abscess is sufficient to establish metastatic origin of the pneumonia.

The time of developing the pneumonia ranged from thirty hours to three days, which shows that this condition may take place very early and is not the late terminal pneumonia that we so often see in debilitating diseases.

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### INCISIONAL HERNIA—FACTORS IN CAUSE AND PREVENTION.\*

By HARRY W. BACHMAN, M. D., F. A. C. S., Bristol, Va.

The three words "restoration of function" as expressive of an ideal in medicine have become widely familiar to the profession. In this discussion, attention is invoked to a

slightly different ideal, which may be expressed as a "preservation of function," especial reference being made to the preservation of the functions of the anterior abdominal wall.

It is unnecessary to mention all of the purposes which this structure serves. The muscle group composing it acts as an accessory muscle of respiration. It is important in parturition, and as a regulator of intra-abdominal pressure. Its chief functions, however, are obviously those of a retaining wall for the abdominal viscera and as a muscle unit whose contractions materially assist in the acts of urination and defecation.

It is well to recall for this discussion the structure groups which enter into the formation of the abdominal wall. There is, of course, the thin, delicate serous membrane known as the peritoneum, with the denser fascia transversalis immediately superficial to it. This is followed by a plane of striated muscles which derive their nerve supply from the anterior divisions of the thoracic nerves from the fifth to the twelfth and by branches from the ileo-inguinal and ilio-hypogastric. Then there is the aponeurosis of the external oblique fusing with the anterior sheath of the rectus, and, finally, the superficial fascia and skin. Reference will be made subsequently to the nerves supplying the rectus.

Following incision, the occurrence of muscular atrophy or the failure of union to occur *per primum* between the corresponding layers may result in weakness in the scar. If, subsequently, any of the structures within the abdomen protrude through this weakened area, one has the condition known structurally as hernia. When such occurs, no little discomfort may follow to the individual and cause him to appraise an operation, satisfactory in every other way, as an abject failure. It behooves us, therefore, to reckon with the various factors which may cause an incisional hernia and especially so since prevention is frequently corollary to recognition.

While no less than sixteen conditions may operate to weaken the repair of an incision, the two which probably determine the condition more frequently than all the rest are infection and muscular atrophy. These two seem to merit some detail in discussion.

1. *Muscular Atrophy*.—Perhaps the most frequently used incision in surgery on the abdomen is that passing through the rectus

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muscle. Reference to anatomical arrangement will show that the nerves supplying the recti enter at right angles to the direction of its fibres, and pass more or less horizontally across to the mid-line. When a longitudinal incision passes between these fibres, as it usually does, it is evident that the motor nerve supply is more or less completely destroyed to those fibres lying medial to the plane of incision. What happens to a muscle when its communication with the cells in the anterior horns of the spinal gray matter is destroyed is a matter of common knowledge. Atrophy occurs unless by chance regeneration of the axis cylinders quickly occurs. Unfortunately, in the case of motor neurones this is less apt to follow than in the case of sensory neurones. Not infrequently, therefore, one can demonstrate weakness in the muscle medial to the line of such an incision, such weakness constituting a potential or actual hernia. The manner of preventing this sequel to incision is obvious. The integrity of nerve supply must be preserved with the greatest care, else atrophy is certain to occur. Such preservation can easily be accomplished by displacing the rectus muscle laterally after its anterior sheath has been opened. The sheath medial to the incision is reflected toward the mid-line, exposing the inner border of the muscle. Retractors hold the muscle out after it has been loosened with the fingers, and incision through the posterior sheath, fascia transversalis and peritoneum can be continued in the same plane with the skin incision.

The fact that the technique requires a little more time and trouble is hardly a valid criticism. Aside from the added strength in the wound, certain other advantages obtain from its use. The superior and deep epigastric vessels are rarely seen when the muscle is displaced, and consequently bleeding from this source is rarely encountered.

Another advantage is that the full thickness of an intact muscle as it falls back into place after closure of the posterior layers is interposed between the two most important planes of suture. This again promotes the accurate repair of corresponding layers of the abdominal wall.

2. *Infection.*—Infection as a factor in post-operative hernia is at times unavoidable. It results in indirect union of tissue through the medium of fibrous connective tissue which in

time becomes relatively avascular and of low tensile strength. When the use of drainage material is required, in addition to the feature of infection there is the further factor of actual failure of approximation of tissue. While the defect is ultimately replaced by scar tissue, the disadvantage of a combination of a defect and of infection is so obvious that the association of the two should again be avoided whenever possible. Instead of bringing the drain out through the primary incision, one can bring it through a small stab wound to one side and in this way materially minimize the chances of a hernia. It is no rare occurrence to see the primary wound, spared from the presence of a foreign body and from contamination from within and from without, heal by first intention under such circumstances. It is common knowledge that drains introduced for severe infections should rarely, if ever, emerge through the mid-line and experience seems to justify the generalization that they should just as rarely emerge through the primary incision. Observation of this rule is believed by the writer to have spared him the annoyance of incisional hernia in numerous instances where otherwise he surely would have expected it.

One's concepts in surgery are the reflection of his personal experience and his observation of the results of the work of others. It is on such concepts regarding hernia that this paper is based. While numerous other factors in post-operative hernia are worthy of consideration, such as a pre-existing chronic bronchitis or urinary obstruction, it was not intended to discuss them at this time. I have called attention to two factors, however, believing that their importance is overlooked with sufficient frequency as to merit especial mention. Disregard of them may result in disability greater than that for which operation was originally undertaken, while the presence of extensive muscular atrophy may make the cure of hernia difficult if not altogether impossible.

### UPPER RESPIRATORY FOCAL INFECTIONS.\*

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I shall request your indulgence if, in dealing with my subject, I repeat some points which have been previously emphasized by clinicians and research workers. The impor-

\*Read before the Seaboard Medical Association.

tance of the question, and the relative frequency with which a focus in the tonsils, the mouth, the sinus, the ears, or the pharynx has been overlooked in those patients coming to us, is the common experience of men in our profession who give their patients the benefit of a complete clinical survey.

Focal infection is no longer a fad. A pioneer, Dr. Benjamin Rush,<sup>1</sup> in 1801, advocated extracting the teeth of those patients suffering from intractable rheumatism. Some ten years earlier, Eyerling, of Christiana, insisted upon a definite relationship between tonsillitis and arthritis. Rush's idea was placed upon a more reasonable basis years later by Riggs, a dentist of Hartford, while Poynton and Paine, of England, gave substantial proof that rheumatic fever was caused by strepto-rheumaticus. In 1909, Rosenow and Billings published the results of studies, which then appeared, and have since proven to be, monumental in their contribution to the theory of focal infection.

In our experience with patients admitted to the hospital for treatment, where a focus is suspected or proven to be the cause of trouble, tonsils are to be considered first, in spite of the fact that a United States Government survey shows that of all surgical procedures tonsillectomy is most in the ascendancy. This is explained in several ways. Arthritis, kidney, and heart lesion patients are, in a large percentage of cases, ill enough to be hospitalized and not treated as ambulatory. It has also been the custom to treat gastric ulcer cases in bed for a period. Then, too, a small per cent of patients who have had a tonsil operation, after careful examination, prove to have infected tonsillar stumps remaining. Most important of all, there is an apparent lack of standardization in tonsil examinations. I wish to make the point that, in spite of wholesale tonsil surgery for the last decade, the tonsil is still the first focus of importance in hospitalized patients. I believe this is due, first, to the practice of passing a tonsil as harmless merely by reason of its appearance and size. The examiner takes a look, sees a small innocent looking tonsil or no tonsil at all, and looks elsewhere for the infection. Second, there is the taking for granted that a history of tonsillectomy means just that, whereas careful examination frequently proves this to be erroneous. I do not mean to say that the conservative treatment for tonsils is in a bottle on

the shelf, but I do believe that attitude preferable to what, from my experience, appears to be the common practice of passing up small infected tonsils and tonsillar remnants. To my mind, any man accepts a grave responsibility when he passes judgment on a tonsil without using a pillar retractor to expose the tonsil to clear view, expressing the cryptic contents, investigating the cervical lymph node, and eliciting a careful history of tonsillitis, quinsy, etc.

The foci about the teeth are a close second in importance. In fact, I believe, considering the out-patients along with the hospitalized ones, the dental foci would be first by at least twenty-five per cent. Here, again, the number of located foci leads one to suspect a lack of standard in alveolar examination to eliminate the presence of infection. The presence of a root canal filling or a devitalized tooth, artificial dentures, bridges, etc., indict any mouth, and make imperative X-ray study, where pathology exists which may depend upon a focal infection as an etiologic factor. No tooth which has been filled, or which is an anchor for bridgework, can be exonerated until filmed. The old story of the patient presenting his doctor with his plates when told his teeth were under suspicion, no longer holds good. We have had several cases in our service where after all other possible sources of investigation had failed to locate the foci, an X-ray by Dr. Poole showed some remaining roots with infection present, though the patient had worn comfortable plates for years with no visible signs of any teeth left. One case of iritis recently, very severe, gave me no end of trouble in the effort to combat the eye pathology. The possibility of remaining roots in the mouth escaped my notice. I was reminded by Dr. Paul Whitaker to have an X-ray of the mouth, which revealed a small piece of canine left with an area of rarification. This was taken care of by Dr. Poole, and the patient's eye condition promptly and rapidly cleared up. It requires a competent dentist who does not allow his interest to end with the confines of the oral cavity, but who evinces interest with the internist or the specialist in the patient's chief complaint, to properly handle this question. In answer to the statement of some very conservative men that a patient has only one set of teeth after a certain age, I would remind them that any man can live



much more comfortably with an artificial denture than he can with an irreparable heart, kidney, eye, or joint lesion. Any internist or specialist interested enough to follow his cases through operation, keeping in touch with a follow-up, and a post-mortem where possible in case of death, appreciates and soon learns to respect the diagnostic ability of a dentist who inquires as to results obtained and the progress of the cases which have passed through his hands.

Sinuses I place third in frequency as a focus. Again we note the need of standard method of examination, as I know of numerous cases where, after a casual inspection of the nose with a speculum and noting the absence of purulent discharge, the sinus has been given a clean bill of health. It is not such a simple matter as this, and the careful rhinologist is always rewarded for painstaking effort in this field. The symptomatology of sinusitis is varied. The acute sinus, which should be easy, is often treated as a simple head cold, la grippe, etc., without suspicion of sinus involvement. There is much discussion of the value of X-ray, transillumination, etc., but allow me to say that there is nothing wrong with either X-ray or transillumination. They are both valuable diagnostic aids. It requires in the first place an X-ray man competent enough to work out a satisfactory technic, and then with the ability to properly interpret the plate. I prefer a Granger and Waters position for anterior and posterior plates of the sinus, then a side view, with our horizontal line on a level, for the sphenoids. Or you may direct the ray from below the chin to the vertex, this giving an excellent idea of the sphenoids. We cannot expect the film to be the same in each sinus X-rayed for suspected pathology. There is a wide variance in the bony wall thickness. There is a varied chemical and physical make-up in the sinus content, all the way from a thin watery exudate to a thick pus-containing tissue debris, including various stages of polypoid degeneration. The X-ray man and the rhinologist, by cooperation, can do together in diagnosis what no one man can do alone. For more than two years I have occasionally used iodized oil in sinus diagnosis, with varying results. Recently I had the pleasure of having Dr. A. W. Proetz, of St. Louis, explain the technic which he worked out in his displacement irrigation. I am convinced that my fail-

ures were due to my own mistakes, and I feel sure that Dr. Proetz has made a definite contribution toward the handling of sinus cases. The use of the iodized oil certainly yields information afforded by no other method of which I know.

Recently sinus infection has come to demand attention in some types of chest conditions. To Mullin, of Cleveland, goes the credit for pointing out and offering clinical evidence of the relation between chronic sinus disease and bronchiectasis. For years it has been noted that certain sinus cases had a cough, thought due to aspiration, but Mullin and others, taking into account the lymph drainage from the sinus through the pharyngeal chain down to the peri-bronchial glands, have advanced a new idea here. It is quite common to find in sinus disease a laryngo-tracheitis, generally extending to a bronchitis. If the sinus infection is not taken care of in time, a well-established bilateral bronchiectasis may occur. The chest X-ray picture is characteristic in these cases, showing a peri-bronchial thickening, especially about the hilus, extending at times towards the periphery. Lipiodol instilled, or bismuth subnitrate powder insufflated through a bronchoscope, is the answer to the problem of definitely outlining with the X-ray any cavities or dilations of the bronchi. Any chronic cough should most certainly be investigated from the standpoint of sinus infection, and the bronchoscope used in making a diagnosis of the extent of bronchial involvement, including, of course, pneumonography.

Adenoids I mention with the pharynx, since this mass of lymphoid tissue found so frequently in early life in the vault of the pharynx does not receive the attention due it, in spite of the amount of advertising it has had. We must bear in mind that this post-nasal space is not constant in its shape and size, and that frequently the posterior ends of hypertrophied turbinates change the space somewhat. From the number of recurrences of adenoids after removal one is led to believe that operations done blindly in this field are not desirable. I think the failure to completely remove that mass of adenoid tissue in Rosenmueller's fossa is the most frequent cause of unsatisfactory results from the operation. Of course the obstruction of the eustachian tubes and the blocking of aeration and drainage to the posterior part of the nose demand complete and

clean removal of the adenoids, bearing in mind that minimum trauma means minimum scar tissue in the end result.

I believe it impossible in all cases to remove the adenoids cleanly with the ordinary large curette. To be sure, they will get the central mass, but they have been known to do serious harm, many cases of hemorrhage following adenectomy being due to excessive trauma to the posterior end of the septum or even the prevertebral tissues. We use these curettes, but, in addition, we always clean out Rosenmüller's fossa with several thicknesses of gauze wrapped around the finger.

Nasal obstruction or mouth breathing in children is in nearly all cases interpreted as adenoid hypertrophy. Recurrent attacks of nasal obstruction, as, for instance, with each head cold, call for thorough study. It is by no means uncommon for children to have sinus pathology. Of late years we are recognizing acute and chronic sinus infections with increasing frequency, and it is important to stress the likelihood of recurrent head colds, mouth breathing, or nasal discharge being due to a sinus involvement even in the very young. In the adult, fortunately, in most instances the pain and discomfort of an acute sinus demand relief. But there are many cases with chronic foci in the sinuses still going about untreated, with few or no obvious symptoms, or else enduring the discomforts of septic absorption, nasal discharge, and post-nasal drip, or recurrent head colds, resigned to the fact that they have catarrh, and there is nothing much to do about it. These sufferers believe this because some doctor has told them so. To that doctor belongs the responsibility of allowing a patient to acquire perhaps permanent heart, kidney, joint, or lung damage, not to mention the possible complications of sinusitis, such as meningitis, brain abscess, and so on. We are all living and working in an age when honesty brings its own reward, and for me or any one else in the profession to temporize and palliate symptoms without competent consultation sooner or later brings disaster—not only to the patient, but eventually to our own reputation. For some of these people sometimes investigate for themselves and are liable to go to a man who is neither lazy nor indifferent to some question in the broad field of medicine which the previous doctor considered unimportant.

Vasomotor-hypersensitive or allergic rhinitis

which gives nasal discharge, blocking, etc., may be interpreted as sinus involvement, and in many cases has a concurrent sinusitis, but the character of the discharge, thin watery stainless, yet copious, serves to help in identification. A careful history and sensitization tests are the big factors in diagnosis. Any case showing nose, throat, or ear symptoms, or a chronic cough, calls for a competent otolaryngologist's opinion—and that most certainly implies radiologic, transilluminatory, and laboratory study. In handling sinus cases after the diagnosis has been made, I am glad to say that we are able to note a decided conservative trend. There are many cases over the country today who have had more than one operation. In the future I am sure the question will be how little surgery can we do here to restore function, rather than the consideration of extensive mutilating surgical procedures. Physiologic principles in this field are equally important as elsewhere. Horsley, of Richmond, has been and is stressing physiology in surgery. Experiences in the past are serving to point the way along such lines in our own special field of otolaryngology. Any man, for instance, doing sinus surgery with consideration of ciliated epithelium and its function will accomplish much. Needless to say physical and biological laws obtain here as elsewhere. I do not deny the necessity of radical procedures in the face of advanced pathology, but I believe these cases are in the minority, today more than ever before, due to our recognition of conditions which lead to marked changes and degenerations. An acute primal sinus involvement recognized and properly treated forestalls a legion of chronic and difficult conditions.

The ear as a focus in the adult represents a comparatively small class. The ear focus itself is usually a result of tonsil, adenoid, or sinus disease. Our chronic ear cases simply reflect the ability of the doctor to recognize trouble in previously discussed sites. Many of our deaf cases in adult life have their counterpart in their beginning in that large class of cases which today are being taken care of by state and clinics, groups, and individual specialists.

Middle ear disease in infants and children at present is being studied as never before. There will be much information to come from this study, and I expect in a few years, after the heat of discussion has died down and the



critical destructive attitude taken by some men has moderated, that the facts will stare us in the face and make us wonder why post-mortem reports were so long ignored, along with the clinical reports, since a large percentage of these cases have been having the benefit of operation. Of all advances in otolaryngology in the past decade, I give it as my opinion that the work which has been done on the infant mastoid as a focus is the outstanding one. Dean, formerly of Iowa City, but now at Washington University Medical School, Byfield and Floyd, of Iowa City, Lyman, McMahon, Marriott, and Hartman, of Washington University, St. Louis, have made reports from time to time of this work in relation to the acute gastro-intestinal upsets and the more chronic nutritional disorders. Yet, in spite of their publications, after talking with thirty-eight otolaryngologists from twenty-four different states, I am surprised to find an apparent lack of understanding of this subject as reported by the men mentioned above. I am forced to the conclusion that a man loses much who does not study carefully the current medical literature, who consigns reprints to the waste basket without careful perusal—and that the doctor who does not make it a point from time to time to gain personal contact with those men doing research or other outstanding work, will find himself in arrears of current teaching. And last, but most important of all, that the man who utilizes the clinical material, however limited, with which he has daily contact, by careful study, cooperating with the internist, the surgeon, the pediatrician, and the pathologist, is benefited in great degree by this opportunity for securing first-hand knowledge. The question of infant mastoid infection has been raised before this society on two previous occasions—at the Newbern meeting, and at Norfolk, where I gave you a very fragmentary report of our first forty cases. Since that time we have done, and are doing, more drainage operations with uniformly gratifying results. We have also been away to other larger clinics in the attempt to learn how to do them better, and the indications for such procedures as has been suggested by some very prominent men in our state. Now I will ask these gentlemen a question. Have you asked your pediatrician to allow you to post-mortem the babies who have succumbed to gastro-intestinal conditions?

Have you spent hours with your pediatrician in the study of these nutritional cases from an otologic standpoint? Have you studied carefully the literature on this subject, or have you seen the men work who are reporting the results of their studies? If not, I desire to be kind when I say I believe you who have been so vehement in your adverse criticism have spoken out of turn. It is one thing for a man to criticise in a constructive way, but quite another for him to denounce or attempt to deprecate a thing without some proper information looking toward a better solution of the question.

Upper respiratory infection in early life, sinusitis, otitis media, and especially infection of the infant mastoid antrum, constitute a field within themselves, and we of the profession are deeply indebted to these men from St. Louis for their keen observation, and their scientific deductions; and as other honest and earnest workers follow their leads, I feel sure that it will only be a question of time until the profession as a whole will be familiar enough with this subject to at least prevent the misquoting of these pioneers, and to make the recognition of this class of cases an assured fact generally.

Just here, allow me to call to your attention the fact that not only are the men doing these drainage operations on the infant mastoid misquoted by a great many men opposing their procedure, but the statistical reports of their cases are interpreted in the wrong light. It is not claimed that the otologic picture here is normal. The statement is made, however, that a baby's eardrum may show comparatively slight change when there is gross pathology present in the antrum. We know this to be true, because we have operated on these cases, and found it so. We have never done such an operation after finding a perfectly normal eardrum. To answer any doubt as to the pathology found, one has only to be present at operation and see the antrum filled with gross pus, even showing at times large secondary cells in the young, at times sero-sanguineous fluid, with the edematous lining membrane instead of pus. If this does not convince skeptics, let them follow through with the cultures and the microscopical examination of tissue and bone chippings.

The question of a high mortality is cited. The average is less than 20 per cent. The

mortality of diarrhoeal diseases is rated at about 10 per cent for all classes. It is within that 10 per cent that we get the cases needing drainage operations, so if we are saving 80 per cent of that part of the 10 per cent represented by a focus in the upper respiratory tract, I consider it a rational life-saving measure. And I believe that, as we progress, we will be saving not 80 per cent, but 90 per cent and higher, of a class which have hitherto been lost.

Figures are misleading, yet it is definitely admitted by all that post-mortems show definite pathology. It is not explained, nor is it even mentioned by many critics of this work, just what relation a focus may have with the death of a baby succumbing to intercurrent diseases. From our experience with the class of chronic focal cases, we believe that the baby, devitalized as the result of a focus, quickly goes out, or is most certainly an easier prey to pneumonia, or other infectious diseases. I have seen small underweight, pitiful, wizened-face, marantic infants begin to improve immediately following operation and rapidly gain weight without any radical diet changes. This is found in the chronic type of nutritional disturbance. The acute gastro-intestinal cases generally behave differently. They may have an actual rise of temperature, and a flare-up of all symptoms, following operation. This is generally temporary, and in a day or so they begin to quiet down and continue to a normal condition. This is simply a drainage proposition, and they must be drained and kept draining. If allowed to close in a few days, all symptoms will return.

In children it is our practice to suspect upper respiratory infection in the following conditions, and every possible diagnostic aid is brought to bear to rule out a focus. First, the infant with a severe gastro-intestinal upset, for here we are dealing with an acute condition. We must be conservative, I will admit, but I claim that conservatism here consists in locating a focus and draining it in all cases where food injury and an infective process in the gastro-intestinal tract have been ruled out. So, given a baby with diarrhoea, vomiting, which has been given adequate fluids and diet and still does not improve, pay careful attention to the slightest deviation from normal in the ear and nose. If that baby gives a history of recurrent ear involvement, you may feel

fairly sure of locating the focus there. The more chronic cases of nutritional disturbances, such as the pale, anemic, underweight child, giving a history of failure to gain in spite of proper diet, etc., demand that a focus in the ears, the sinus, or the throat be excluded. Then all chronic coughs should be viewed from the standpoint of a rhinopharyngeal condition, and lung suppurations ruled by X-rays, bronchoscope, and pneumonography. The kidney conditions, either the glomerular or the nephrosis cases are all studied from a focal standpoint, the glomerular especially from the neck up. The nephrosis cases may have a focus in the chest or elsewhere, Marriott<sup>2</sup> reporting cases traceable to an abscess in other sites. The arthritic and cardiac cases require the same careful painstaking effort to locate the focus, and the treatment of all classes, of course, is primary eradication of any foci found.

The proper study and evaluation of clinical data can only be obtained and correct treatment instituted in an intelligent manner with the close cooperation of the general practitioner, the internist, the pediatrician, and the otolaryngologist.

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### ACUTE ANTERIOR POLIOMYELITIS WITH SPECIAL REFERENCE TO THE EARLY DIAGNOSIS AND TREAT- MENT.\*

By BERNARD H. KYLE, B. S., M. D., F. A. C. S.,  
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The name infantile paralysis does not correctly describe the disease when it attacks older children and adults. Acute poliomyelitis, according to Amoss, is an infectious, contagious, communicable disease, resulting from the growth of a filter passing virus in the central nervous tissues, with symptoms first of a systemic infection, and then, in some cases, of those referable to lesions of the cord and brain. The disease may be sporadic or epidemic.

"Why do we see so many cases of poliomyelitis, which are undiagnosed until paralysis appears? Cannot these cases be diagnosed earlier? Is there not a specific treatment which

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will aid us in our fight to prevent paralysis?" It was to answer these that Diverly, of Kansas City, and others, have set out to answer. During the 1923 Kansas epidemic, observations were made in 185 cases; these followed over a period of two years. Of the 185 cases, 113 were found in males, seventy-two in females. Seventy-seven per cent of the cases reported occurred during the months of July, August and September. Eight patients were reported as being under four years of age, seventy-two between the ages of four and fifteen years, inclusive, while thirty-four were over fifteen years. It was noted that the disease attacks adults as well as infants, but the resulting cord injury is more profound and permanent in the child; yet the mortality is greater in adults. The symptoms noted in this epidemic and described by Dr. Diverly, in order of their frequency, were unexplainable fever, gastro-intestinal upset, severe headache, pain and stiffness in the back of the neck, general muscular soreness, nervous irritability and sore throat. The acute symptoms lasted four to ten days, and the paralysis generally appeared on the third to fifth day after the onset of acute symptoms.

With few exceptions, acute poliomyelitis begins more or less suddenly with general symptoms. A previously healthy child seems out of sorts and listless, with loss of appetite. During epidemic periods, in from 25 to 40 per cent of all cases, a history of an upset from three to ten days previously may be elicited. Draper has described a series of such cases and believes that the acute attack represents invasion of the virus. Usually the indisposition passes quickly and the child remains apparently well until the second phase, or definite attack, of acute poliomyelitis is evident. Constipation is the rule. Fever is always present, from 100° to 102° F., though it may reach 105° F. The blood picture is generally accepted to be abnormal in white counts, but opinion is divided on the characteristics of this change. The spinal fluid offers invaluable information to be gained by microscopic and chemical examinations. From the beginning of the attack abnormal findings are the rule. The fluid is usually clear and under increased pressure, occasionally turbid. The cell count is above normal, remaining up for the first few days, which is followed by an excess of globulin which increases each day for

a few days. In epidemic periods, diagnosis of poliomyelitis can be made before the onset of paralysis. A child with a gastro-intestinal upset, headache and fever, less alert and bright than with ordinary fevers, somewhat cranky and unapproachable, should be examined more carefully with the possibility of poliomyelitis in mind. Such a child is difficult to examine. It is even more difficult for the consultant, as the patient has learned from previous examinations that stretching of the neck and back are painful. A few minutes devoted to making friends is helpful. When the patient is asked to bend over and place the head between the knees, the back is held straight and the patient bends only from the hips; this is the most constant of all signs in acute poliomyelitis.

The basis of serum treatment rests upon the observations of Romer and Josephs that immune bodies are present in the blood of recovered cases. The experiments of Flexner and Lewis show that the injection of such serum delays and may prevent altogether the development of paralysis in monkeys previously inoculated with the virus. In the absence of any immune animal serum, recourse must be had in human convalescent serum. During the past few years the technique has been improved and many observers have reported excellent results with human polio-convalescent serum when injected into the blood stream. However, human polio-convalescent serum is not always obtainable.

Rosenow, working on the assumption that anterior poliomyelitis is caused by a certain strain of streptococcus, has produced an immune horse serum for the treatment of the disease. Rex L. Diverly, of Kansas City, during the epidemic of 1925, used Rosenow's serum in fourteen cases, as follows: "Strict isolation, early and repeated spinal drainage to keep the pressure down, followed by antipoliomyelitic horse serum, given directly after the spinal drainage. From this brief series of cases, the following conclusions are justifiable: The cases treated with Rosenow's serum showed a more rapid recovery and the paralysis was not so profound and extensive as in the untreated cases. The effect of spinal drainage on the acute symptoms was almost phenomenal, the symptoms disappearing for the most part a very short time after the drainage and only appearing when the spinal pressure again was

raised above normal. The death rate in the treated series was much smaller than in the untreated cases."

The monkey in which the virus was neutralized with human serum showed very few signs of illness. The monkey in which the virus was neutralized with Rosenow's serum showed a definite paralysis, but a complete recovery was noted with human convalescent poliomyelitic serum and antistreptococcic poliomyelitic serum of Rosenow is capable of neutralizing the virus of poliomyelitis. The experiments tend to demonstrate, however, that the neutralization is more complete with human convalescent serum. After seven days following the administration of human convalescent serum, the monkey with infantile paralysis was well and normal. Blood has been taken from recent convalescent patients, in Lynchburg—blood is of value taken from convalescent patients from beginning of convalescence to five years following convalescence—who are free of infectious diseases and the blood Wassermann negative, inactivated, and placed in the ice box where it will keep for an indefinite period. This serum is being prepared for any future acute cases that may occur in and around Lynchburg. It must be given early, or it is of little value. Infantile paralysis, unlike the acute infectious diseases of childhood, occurs during the summer and fall months, disappearing with the coming of frost and snow.

This brief paper does not attempt to go into details with reference to the symptoms, diagnosis and differential diagnosis, but more to emphasize the early giving of human convalescent serum, with a hope that the State Board of Health of Virginia will furnish this serum throughout the state by aeroplane or automobile.

### CONCLUSIONS

1. Poliomyelitis can be diagnosed prior to the onset of paralysis.
2. Microscopic and chemical examination of the spinal fluid will confirm the diagnosis.
3. Human convalescent serum, if given prior to onset of the paralysis, will, in the majority of cases, cure the patient in seven to ten days.
4. Spinal drainage is necessary to relieve the pressure.
5. Human convalescent serum will keep indefinitely at the proper temperature.

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## LIPIODOL—ITS VALUE AND LIMITATIONS IN THE STUDY OF DISEASES OF THE CHEST.\*

By ELIZABETH H. EDMUNDS, M. D., Richmond, Va.

At present the use of opaque substances in the study of pulmonary affections has reached a stage of exactitude comparable to their use in the study of gastro-intestinal diseases. In 1905 Chevalier Jackson<sup>1</sup> insufflated bismuth subcarbonate into the bronchi. In 1922 Sicard and Forestier<sup>2</sup> and Leroux<sup>3</sup> first used lipiodol for lung-mapping. Since then it has been widely used and a large amount of literature has accumulated on the subject.

Lipiodol is 40 per cent iodine in poppy-seed oil; is non-irritating and practically non-toxic; and is an excellent contrast medium. Several similar preparations are marketed which appear to have no advantages over lipiodol.

### METHODS OF INTRODUCTION

A number of methods of introducing oil into the tracheobronchial tree have been used. One of the simplest is the supraglottic by which the oil is dropped into the larynx from above. In the transglottic method the oil is injected through a long curved cannula introduced into the larynx or through a soft rubber catheter. A method advocated especially by the French and by workers with children is the subglottic or intercricothyroid. After anaesthetization of the skin and subcutaneous tissues, the cricothyroid membrane is punctured with a curved, hollow needle and the oil introduced directly into the trachea.

The bronchoscopic method is simply the introduction of oil through the bronchoscope.

Iglauer<sup>4</sup> has reported an ingenious scheme of injecting the oil through a modified intubation tube with double channel, one for the oil, the other for breathing.

Finally, Nather<sup>5</sup> has devised a swallowing method which is apparently the simplest of all, but in the few in which I have seen it tried it was entirely unsuccessful.

Good results can be obtained by almost any of these methods and each worker is apt to use the one with which he is most conversant

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and most successful. It is well, however, to be familiar with several methods, as all cases are not adapted to any one method. The bronchoscopic method enables one to place the opaque substance at will in any part of the bronchial tree, and at the same time the diseased area may be visualized, secretions aspirated, and sections removed for microscopic examination. These are great advantages which are offset in the majority of cases by the technical difficulties which necessitate a highly trained worker.

The usual amount of oil given is 15 to 20 c.c., though frequently surprisingly good results are obtained with small amounts of even 5 c.c. As oil enters by gravity and aspiration, it is best to have the patient inspire deeply during injection. The oil should be warmed to facilitate its flow and to prevent irritation. The lipiodol may meet with obstruction, such as stenosis, or compression of a large bronchus, abundant pathological secretions, or insufficient thoracic aspirations. It frequently happens that when one method fails another will be successful in a given patient. It is important to examine the patient by the fluoroscope immediately after the oil is introduced to determine whether it is in the desired location, and because often valuable information is obtained this way that would be lost if plates alone were taken. Pneumograms should be made without delay because the picture changes rapidly under the influence of cough and respiratory activity. The densities shown by the X-ray persist on an average for ten days or two weeks, but may persist for many months and cause shadows which lead to erroneous interpretation if knowledge of their cause is lacking.

#### DANGERS AND DISADVANTAGES

Archibald and Brown<sup>6</sup> sound a warning note on the dangers of introducing iodized oil into the tracheobronchial tree. They mention all possible dangers apparently, but say that, while the dangers in no way militate against the use of the oil, it is well to bear in mind their existence. Each method of administration has its own potential dangers. From my own observation I would conclude that the intertricothyroid method carries the greatest hazard. In this method the dangers are present of laryngeal edema, local sepsis, and a false passage. Several times I have seen deposits of lipiodol in the subcutaneous tissues

resulting from a failure to get all of it into the trachea but no harm seemed to come of it. I saw one fairly severe case of local sepsis following this method of introduction in a case of bronchiectasis with unusually abundant, foul expectoration where it was thought the sepsis was due to leakage of sputum through the puncture hole. There were two cases of laryngeal edema with dyspnea, stridor, hoarseness, and all the discomfort and acute anxiety that accompany these symptoms. Both patients recovered, but one was regarded as in a very serious condition and caused this method of administration to be in some disrepute at Bellevue Hospital and to be largely replaced by other methods.

There is the possibility of iodism. A number of cases have been reported, but their mildness, their rarity, and the slow rate of absorption of the drug would indicate that iodism is not of great importance unless the patient's tolerance is low. Iodism apparently results more from absorption from the stomach than from the bronchial mucosa. If considerable of the oil reaches the stomach, lavage may be resorted to. While in Bellevue Hospital when learning to inject lipiodol and seeing other house officers learn, I saw larger and smaller amounts of the oil reach the stomachs of a number of patients, but in none of them did its presence there appear to produce undesirable effects, and never was it necessary to remove it. I never saw a case of any degree of iodism follow lipiodol injection.

In tuberculous patients the iodine may bring about a sensitization effect with activation of quiescent disease, or, from the usual congestive action of iodine, add an acute process to the already present pathological process. Lichwitz<sup>4</sup> reports an acute extension in a case of pulmonary tuberculosis and advises against its use in this disease. Arnand-Delille and Moncrieff<sup>7</sup> report a case of acute iodism and edema of the larynx. Miller and Egglee<sup>8</sup> report a fatal case, diagnosed as cerebral embolism, following injection of lipiodol into a thoracic sinus.

#### SOME INDICATIONS FOR THE INJECTION OF IODIZED OIL

That this method is useful in the study of normal lungs has already been indicated by the work of Ballou.<sup>9</sup>

It may be of value in determining stenosis of the trachea or bronchi, displacement of these

organs, or fistula. It is of value in the differentiation of peribronchial infiltrations and chronic bronchitis from bronchiectasis. In some cases of tumor of the lung it may give information as to diagnosis, location, and extent, especially in determining constriction of the bronchi. Patients with lung abscess should be studied by this method to determine extent, localization, and communication with a bronchus.

In pulmonary tuberculosis it is useful in determining the presence and extent of cavities which did not show up definitely on ordinary X-ray, and in differentiating cavities from annular shadows or localized pneumothoraces.

It is of inestimable value in cases that have had an operation for thoracoplastic collapse in that it is the only way the thoracic surgeon has of determining the true condition of the collapsed lung. On account of the density of the surrounding tissue, any cavities that remain are hidden in the ordinary X-ray. With lipiodol the cause for failures or imperfect results may be explained.

Cases under consideration for surgical treatment for a presumably unilateral bronchiectasis should have bronchograms to determine the presence or absence of lesions in the opposite lung.

Lipiodol injected in small amounts into a pleural cavity will give exact information of its limits, and is the only way such information can be obtained in large effusions.

It is in the study of bronchiectasis that the bronchogram reaches the height of its usefulness. Before the use of lipiodol the diagnosis of bronchiectasis could hardly be made until the patient had reached a most distressing state. Now early lesions can be detected. With lipiodol the pictures are characteristic, and when the lesions are behind the heart shadow or below the level of the diaphragmatic shadow, they make a positive diagnosis which would have been impossible otherwise. According to the work of Rist, Jacob, and Trocme,<sup>10</sup> all patients showing a triangular mediastinal shadow on X-ray should be investigated by lipiodol for these workers found bronchiectasis present in almost every case with this finding. Thus their work shows that mediastinal pleurisy is associated with certain bronchiectases, more particularly with

those developing in the area of the principal lower bronchus.

Mullin says practically all cases of bronchiectasis are associated with sinusitis. Any obstinate case of sinusitis and any case of unexplained chronic cough, whether apparently associated with upper respiratory infection or not, should have a pneumogram made. This applies also to cases of purulent expectoration, especially to those giving a history of previous pneumonia, or of aspiration of a foreign body, or of any operative procedure about the mouth, such as tonsillectomy or the extraction of teeth.

#### INTERPRETATION OF X-RAYS AFTER INJECTION OF LIPIODOL

This requires a great deal of study and it is to be expected that as our knowledge increases interpretation will reach a greater stage of exactitude. A positive image with exact morphological characters has an absolute diagnostic value. Bronchiectasis with its shadows like a bunch of grapes or the fingers of a glove shows such a positive image. A negative image has only a relative value and is to be interpreted with caution, since the lipiodol may not have reached the desired area. Doubtful images of difficult interpretation are frequent. For instance, in an anterior view the bronchi may appear unduly large because they are near the surface and so simulate the cylindrical type of bronchiectasis. The sharply terminated bronchial shadows as seen in emphysema may resemble dilated bronchi. Many conditions, like various fistulae, are easy of interpretation. Sometimes simply a drop of oil will reach a cavity and be shown freely movable in it, and for diagnostic purposes this is just as good as if the cavity were filled.

In abscesses the cavity is often difficult to fill, probably due to the presence of inspissated pus, but the sharp discontinuance of the bronchogram in a certain area in an otherwise well visualized picture may be just as diagnostic as the well filled lesions of bronchiectasis.

In tumors of the lung the lipiodol may stop abruptly, but often a constriction is apparent.

#### CONTRAINDICATIONS

Lipiodol is contraindicated after recent hemoptysis, in acute active tuberculosis, and in acute affections such as occur in the early stages of cold and influenza, in very extensive



and advanced pulmonary suppurations when the patient is in poor general condition, and in advanced circulatory complications. Then there are many cases in whom no further information can be expected from the study of bronchograms than from the more ordinary methods of study. It is only in cases in whom the diagnosis is doubtful, or there are unexplained symptoms, or further information is desired in regard to the location, character, or extent of the lesions, that the use of this method is justified, and then often very satisfactory results are obtained.

#### POSSIBLE THERAPEUTIC EFFECT

A number of observers, among them Dr. Cole, here, and Drs. Miller and Eglee, of New York, have reported symptomatic improvement following injection of lipiodol. This is noted particularly in relief of cough and decrease of expectoration in cases of chronic bronchitis, asthma, and bronchiectasis. It is very possible that we may note improvement after periodic injections of lipiodol, especially as we may expect to learn more about these diseases as our experience increases in the interpretation of bronchograms. My impression is that a considerable proportion of patients injected were improved, but the cases to be treated in this way should be selected with care if good results are to be obtained.

#### SUMMARY

1. A number of methods of administration have been described, all of which have certain advantages. It is desirable that clinicians be conversant with more than one method, so that the method may be fitted to the case.

2. The method of study is practically harmless except in certain cases of pulmonary tuberculosis when an acute process may be precipitated.

3. Pneumograms are of definite value in stenoses, broncho-pulmonary and pleural fistulae, and in certain cases of pneumothorax, especially those with large effusions.

4. In bronchiectasis the pneumogram reaches the height of its usefulness particularly in the diagnosis of lesions behind the heart or below the level of the diaphragmatic shadow.

5. It is of real value after thoracoplasty in giving a clearer picture of the shadows which remain hidden in ordinary X-rays.

6. As yet it has added little to our knowledge

of chronic bronchitis, asthma, and the average case of tuberculosis.

7. In lung abscess, lipiodol often fails to enter the cavity, but this may be of positive diagnostic value. Likewise, in lung tumor the bronchogram is of only relative value.

8. A positive pathological picture is of definite value, but a negative picture is of only relative value, as, for various reasons, the oil may not have reached the pathological area. Doubtful pictures should be disregarded. There is room for erroneous interpretation.

9. The bronchogram is indicated in cases in which the ordinary methods of study are inadequate. It is justifiable to expect the bronchogram to become more valuable as knowledge of its interpretation increases. The prevailing impression that lipiodol gives symptomatic improvement should be either established or disproved.

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#### SOME APPLICATIONS OF ELECTRICITY IN MEDICINE.\*

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There are but two forms of electric currents—constant and alternating. The constant current is known also as the direct or continuous or galvanic. So long as it is flowing through the body, there is no neuromuscular action, but let it be made or broken, muscular contraction immediately ensues provided complete

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degeneration has not occurred. The current being possessed of polarity, the strength of contraction depends upon the active pole. With a small amount of current, contraction occurs first at the negative pole on the make; and as the change in intensity is gradually increased, contractions appear in the following order: At the positive pole on the make, then on the break, and, finally, as the intensity of the current is advanced, at the negative pole on the break. If degeneration has occurred, the effect is reversed—contraction first appearing on the make at the positive pole.

The effects of the two poles differ widely in other respects, and in order to make use of this modality intelligently, these effects must be known. Otherwise, the operator is apt to get results the opposite of those he wishes; and it is because of this lack of knowledge that galvanism was held in low repute.

The positive pole attracts acids; it is soothing, antiseptic, astringent, tissue-hardening, leaving a hard, unyielding scar, and is vasoconstrictor.

The negative pole attracts alkalies, is hemorrhagic, productive of pain, liquefies and disintegrates tissues, is caustic, leaving a soft, pliable scar, and is vasodilator.

With these properties, indications for applications are clear-cut: The positive should be the active pole in such conditions as neuralgias, neuritis, arthritis, metrorrhagia, menorrhea, endometritis, cervicitis, cervical erosion, ulcer, cystitis, atonic constipation, paralysis, especially in the presence of degeneration, the current being made and broken either by hand or rheotome, or employed in the surging form.

The negative should be the active pole in such conditions as warts, moles, redundant hairs, strictures, pin-hole os, etc. The effect of this pole in the last two conditions is, in my opinion, far superior to the usual surgical procedures. Results, once achieved, are permanent. Applications, first continuous then interrupted, in cases of undeveloped uteri with narrowed canals constitute the best treatment for this condition.

A typical case was that of a young woman, aged 24 years, married four years, and anxious to have children. The uterus was anteverted, undeveloped, and the os so stenosed that the ordinary sound could not be passed. Five galvanic treatments were given in October, 1910, with interrupted faradism, interspersed, for muscular development. The succeeding period was comparatively painless. During November, six treatments, with occasional high frequency, were given. Three months later, news of

her pregnancy was received, and she was successfully delivered at term.

Two patients with conditions similar to the foregoing are now under treatment. In neither could a number 11 sound be passed. In one, this sound passed immediately when using the negative pole, and was followed by a number 20 which required 10 minutes to pass the internal os. During the third treatment, a number 24 was passed almost to the fundus after the number 20 had been previously introduced. A few days after this, menstruation came on painlessly.

In the other patient, who now comes to the Physiotherapy Department of Stuart Circle Hospital for treatment, a number 20 was passed after 15 minutes; and at the next treatment, after 5 minutes. Since this article was written, the patient has had two painless periods.

The alternating currents used in medicine are the faradic, the sinusoidal, static, and the high frequency currents—D'Arsonval, Oudin and Tesla.

With the introduction and gradual perfection of the sinusoidal current, the use of the faradic has declined; but the latter is of value in diagnosis of neuromuscular conditions; in feigning; to distinguish between central and peripheral paralysis; and between real and apparent death.

The pain of neuralgia may be cured by faradization if pressure upon the affected nerve causes increase of pain. If pelvic pain is increased by mild galvanization and is relieved by faradization, one may be sure of the absence of pus. If, however, faradization does not relieve, pus will be found to be present (Neiswanger.)

The faradic current is frequently curative in recent cases of Bell's paralysis due to exposure, to rheumatism and other toxic conditions.

The faradic current and the commercial alternating currents differ from the sinusoidal in that the cycles of the latter are uniform, and are thus able to produce muscular contractions that are comparatively painless. Moreover, the sinusoidal current has the power of stimulating to contraction unstriated muscle-tissue, a property not possessed by other alternating currents unless applied directly. This is due to the fact that the cycles are not only absolutely regular, but that they can be so timed as to produce the number of stimuli necessary to set up peristalsis of the visceral organs. Skeletal muscles require a far greater number of stimuli to cause their contraction. So, in treating, say, for atonic constipation with from twelve to sixteen contractions per minute, the



abdominal muscles will barely contract, while normal peristalsis may be observed in the colon.

The sinusoidal current is indicated in all forms of paralysis, in muscle atony, and in wasting incident to joint trauma, fractures, chronic sprains and dislocations, flat feet, muscularly induced curvatures of the spine resulting in malposition; abdominal flaccidity from whatever muscular origin: atony and muscle wasting in consequence of long convalescence. (Pacini, *Service Suggestions*, September-October, 1925.)

It is beneficial in visceral ptoses, in some cases of prostatic enlargement, and for gall-bladder drainage; and it should find use in uterine subinvolution; in a sluggish, dilated uterus in the second stage of labor; and in uterine hemorrhage.

The effects of the galvanic and sinusoidal currents are well exemplified in the case of a young man now under treatment for drop-foot and drop-wrist. When first seen, the reaction of degeneration was apparent in the affected leg, and there was no response to sinusoidal stimuli. Treatment was begun with a slow, surging galvanic current, testing after each sitting with the sinusoidal. Regeneration was accomplished after about ten such treatments, and sinusoidal therapy was then begun. He can now flex the foot and spread the toes; swelling at the joint has diminished, and circulation has improved. He can now write, which he was incapable of doing before treatment. During the course, tingling began in the left hand, but was soon abolished by transferring one of the electrodes to the corresponding arm, thus making the circuit through both forearms and hands.

The sinusoidal is a low voltage, low frequency current, i. e., its alternations number from about ten to 200 per second. When alternations reach about 10,000 per second, or when galvanic interruptions occur at that rate, neuromuscular response, or ionization, as the case may be, ceases, and, so far as we know, no physiologic, certainly no therapeutic, action occurs.

When the alternations are very much increased, 500,000 to 1,000,000 per second, we are in the range of high frequency currents. Such a current, when passed through the tissues, is converted into heat more penetrating, in the case of the D'Arsonval current, than any other modality now known; hence the universality of its application. As has been said by Kovacs, of New York, "the effect of this heat is incomparably greater than can be obtained by radiant light and heat or hot compresses, which merely heat the surface. Heat externally applied cannot penetrate on account of

the skin resistance and of the circulating blood which, as part of the heat regulating mechanism, will tend to distribute the heat."

In addition to the physiologic action of heat on the tissues, converting passive into active hyperemias with all that this connotes: increasing metabolism, increasing erythrocytes, increasing leucocytes, there is its direct action upon pathogenic organisms.

When the D'Arsonval current is applied generally by means of an insulated pad, the method of treatment is called autocondensation. The most evident effect is lowering of the blood-pressure, well-illustrated in a case recently treated in the Physiotherapy Department. At the beginning of the first treatment, systolic pressure was 230; after twenty minutes, it had fallen to 185, nor did it rise above that figure during the whole time that the patient was under treatment.

Autocondensation is indicated, then, in hypertension, with or without arteriosclerosis (uncomplicated by low systolic or high diastolic pressure or myocarditis); and also in dysmenorrhea, amenorrhea, and the menopause; arthritis, neuritis, neuralgia, neurasthenia without irritability, insomnia, etc.

The term diathermy is used when the D'Arsonval current is applied locally by means of flexible metal plates or other suitable electrodes. It has few contraindications. Pus should be evacuated, and focal infections corrected previously to its employment. It is indicated in nearly every inflammatory condition, acute or chronic, and recently, good results from its use in angina pectoris have been reported.

Genitourinary and gynecologic diseases predominate in our work here: trigonitis, prostatitis, cervical catarrh and erosions, endometritis, dysmenorrhea, salpingitis, pelvic exudates, etc. Of three cases of trigonitis, treatment of one was successful, of the others an almost utter failure. End results in the gynecologic cases have been much more satisfactory. Sciatica, arthritis and neuritis have been benefited in the majority of cases.

Perhaps the most spectacular success has followed the use of diathermy in pneumonia. Stewart, of New Haven, was the pioneer in this work. In an experimental study of diathermy dealing with the elevation of temperature in the pneumonic lung, Christie, Ehrich and Binger state in the *Journal of*

*Experimental Medicine*, May, 1928, that "two of them previously showed that the systemic temperature can be raised by this method, but that there is relatively little local heat developed in the normal lung. Thermocouples placed in the lobes of anesthetized dogs seldom registered more than  $0.4^{\circ}$  C. higher than simultaneously recorded rectal temperatures. This is true in spite of the fact that the high frequency current produced by a diathermy machine actually penetrates the body and passes through the lungs, generating heat in the tissues it traverses. Why there is no marked local elevation of temperature in these tissues has been shown to be due to the fact that the heat generated is rapidly disseminated through the body by the circulatory blood. The blood leaving the lungs can be shown to have been heated by the current. If, however, the pulmonary circulation to one lung is interrupted, a precipitous rise in temperature occurs in the ischemic lung. The degree of local heating which occurs under these circumstances will depend upon the extent of interference with the pulmonary circulation. This can be shown by interrupting the flow of blood through one branch of the pulmonary artery, leaving the veins patent and the bronchial circulation intact. There results from this procedure an increase of temperature in the ligated lung amounting to  $1.5^{\circ}$  C. in excess of the temperature in the normal lung. The increase occurs immediately after the artery is clamped, while the subsequent rate of heating is similar to that in the control lung. When, on the other hand, the veins to one lung are ligated, the local heating is far greater.

"From the foregoing, the implication seems obvious that a disease process accompanied by impairment of local circulation may be expected to provide conditions consistent with the production of local heat by the passage of high frequency currents through the region involved. That the pulmonary consolidation of pneumonia represents a disease process in which local circulatory impairment exists, there is evidence to believe. The present study was undertaken for the purpose of discovering whether the consolidated lobe could in fact be heated above the temperature of the uninvolved, relatively normal lung tissue. Though the pathological lesions which presented themselves in the experiments were not perhaps identical with those commonly seen in human

lobar pneumonia, they, at least, may be said to simulate this condition and to represent a more or less complete consolidation of a lobe, or the major part of it.

"The authors have found that such a consolidated lobe can be heated by a diathermy current of the strength generally used in therapy to a point approximately  $1^{\circ}$  C. to  $2^{\circ}$  C. above the temperature of the surrounding normal lobes."

We have had under treatment within the past six months, in Stuart Circle Hospital, two cases of post-operative and one of bronchopneumonia, all of the patients recovering. In the first case, the attending physician cast some doubt upon diathermy being the determining factor in the cure, though the surgeon stated that conditions began to improve after the first treatment.

There was no doubt, however, about the second case. Treatment was instituted within two hours after the presence of the disease was discovered, and repeated six hours later. Beginning at 9:00 A. M. on the next day, three treatments were given, the intervals being six hours, the temperature dropping to normal before the third one was begun. Two treatments were given on the third day of the disease. No other measures looking to cure were employed.

Previously to reading the article quoted, we had observed a similar condition when using a vaginal or intra-cervical electrode with an inserted thermometer. After reaching an elevation of from  $110^{\circ}$  F. to  $112^{\circ}$  F. or more, the temperature invariably falls to  $104^{\circ}$  or  $106^{\circ}$  F., and this we ascribed to the conversion of a stasis into an active hyperemia. The experiments undertaken by the authors proved the theory to be correct.

Mirimanoff, quoting the results of experiments with diathermy on the gastro-intestinal tract (*Influence of Diathermy on the Gastro-Intestinal Tract, A. J. Phys. Therapy*), says that it has been proved that this agent raises intra-stomachal or intra-intestinal temperature  $3^{\circ}$  C in from a half to one hour; that it quickens and strengthens, under normal conditions, gastric peristalsis; and that in pylorospasm without organic obstruction, emptying of the stomach is notably accelerated, thus lessening the pain.

Under normal conditions, he cites, diathermy does not modify the gastric and intestinal secretions either quantitatively or qualitatively; but it is agreed that it lessens regularly and markedly the gastric hyperacidity accompanying, for instance, duodenal ulcer.

He concludes that diathermy is indicated in (1) diseases in which painful phenomena are present, such as gastralgia and gastric attacks



(tabes), painful dyspepsia and gastritis, solar syndrome, chronic appendicitis; (2) in spastic conditions, such as cardiospasm, nervous pylorospasm in adults, pylorospasm of the newborn, aerophagy, nervous vomiting and spastic constipation; (3) conditions having a secretory action, such as hyperacid, chronic gastritis, and certain cases of gastric and duodenal ulcers, and in mucous colitis.

It is not my intention to give the technics of diathermy, but it may be said that before the application of the current the patient should be made as comfortable as possible, and that every detail should have the greatest care in order to achieve success. The individual subjected to a faulty technic whereby the treatment is made disagreeable, or one who has been burned, dreads diathermy. The frame of mind of the patient is a large factor in the success or failure of any method of treatment. It majors in physiotherapy. Electricity is always associated in the lay mind with shocks, and the new patient comes with fear and trembling—fearful of the ordeal he imagines he is to suffer, and frequently actually trembling because of the fear that has been implanted by some one who has probably been roughly handled.

A second factor, of equal importance, is the chronicity of the case. Physiotherapy is often a last resort, but the patient and sometimes the attending physician expect a cure, certainly improvement after the first two or three treatments. In some cases, three treatments *have* been successful; in the majority, they have not, and specifying a particular number with the expectation of cure is comparable to expecting a certain number of doses of a medicine to cure a particular disease. A third factor to be considered is that no single form of physiotherapy should always be relied upon; frequently other methods, medical or physical, or both, should be used concomitantly.

19 South Boulevard.

### FRACTURE OF THE SKULL.\*

By HERBERT H. SCHOENFELD, M. D., Washington D. C.

In a review of the death certificates of the District of Columbia for the years 1900, 1910 and 1920, I find a very definite increase in the percentage of deaths from fracture of the skull, both in relation to the total death rate and to the deaths from all external and violent causes,

as well as an increase in the total number of deaths from such injuries.

The figures show:

In 1900, there were twenty-three deaths from fracture of the skull. These compose .38 per cent of the total deaths and 11 per cent of the deaths from external and violent causes.

In 1910, there were fifty-five deaths from fracture of the skull. These compose .84 per cent of the total deaths and 15 per cent of the deaths from external and violent causes.

In 1920, there were fifty-eight deaths from fracture of the skull. These compose .89 per cent of the total deaths and 16 per cent of the deaths from external and violent causes.

I further find that the causes of fractured skulls are mainly the conveniences of modern life, particularly the automobile, there being a rise in the percentage of fatal fractured skulls due to this cause from 0 in 1900 to 45 per cent in 1920.

Infection, apparently, is the least factor in the majority of these deaths and I found only two cases out of 136, in which the immediate cause of death was given as meningitis.

I have just reviewed the records of fifty-eight cases at the Garfield Memorial and Childrens Hospitals, the study of which showed a total mortality of ten, or 17.2 per cent. Of these, sixteen, or 27.6 per cent were operated on, with a mortality of seven, or 44 per cent. The unoperated group, consisting of forty-two cases, showed a mortality of three, or 7.1 per cent. The deaths occurred—six within twenty-four hours, two within seven days and two after seven days.

These figures demonstrate, conclusively, the seriousness of cranial injuries and, perhaps, the lack of efficacy in our treatment of them. Consequently, my excuse for bringing up a discussion at this time.

Fracture of the skull, of itself, in the vast majority of cases, produces no symptoms, except, the primary shock involved. The symptoms and signs are due to the concomitant cerebral injury, or to pressure, local or generalized, on the brain.

Fracture of the skull is classified in several ways, most commonly as follows:

According to the mechanism of production, as bursting or bending fracture;

According to the presence or absence of a communicating wound, as simple or compound fractures;

\*Read before the Medical Society of the District of Columbia, November 21, 1928.

According to the form assumed by the fragments, as linear, comminuted, depressed, perforating fractures, or by diastasis; and

According to the situation, as fractures of the base or of the vault.

There may be various combinations of these groups in the same injury.

The mechanism of fracture of the skull is a very intricate, interesting subject, too broad a subject to be dealt with at this time.

From the practical standpoint, in so far as treatment is concerned, unless the fracture is of a compound type, in which case early operation is performed, primarily, for the purpose of toilet, our treatment should be outlined upon the diagnostic features of the cerebral involvement.

The diagnosis of intracranial injury or compression is made upon the symptoms and signs.

The subjective symptoms of intracranial lesion are few. The principal ones are, first, headache, which may be associated with vertigo and dyspnoea. The headache may vary in intensity from a heavy feeling or dull ache to the splitting or bursting headache. Its distribution is usually fairly generalized but, more particularly, over the frontal area, the occiput and the vertex. Nausea is the other common symptom. It may be associated with vomiting, particularly if a short time after the ingestion of food.

For practical purposes, the signs of fracture of the skull may be classified as immediate, or early signs, and later signs. These phenomena merge one into the other. The most evident condition is that of unconsciousness, the degree and duration of which is a fairly reliable indication of the severity of the injury. There may be a lucid interval, either following a short period of unconsciousness, or present before unconsciousness begins, which is frequently seen in those cases having hemorrhage.

Shock, of course, is a variable factor, the degree of shock being of no value in the direct indication of the severity of the injury and the course of the intracranial pressure. Likewise, the mental state is a very unreliable index.

The "cracked-pot" note on percussion of the cranium is, usually, a reliable sign of fracture and is of definite use in the localization of the cranial fracture, when present. The injury of the soft tissues is, likewise, indicative

of the point of bone injury, though injury by contrecoup and spreading lines of fracture from the focal point are not unusual.

Blood from the ears, nose and mouth is an indication of basal fracture, particularly so when the blood is mixed with and thinned by cerebro-spinal fluid.

The presence of hematoma is of no value in the diagnosis of skull injury, except in those injuries about the mastoid area, in which "Battle's sign" of hemorrhage over the mastoid area is pathognomonic.

The appearance of the eyes is of importance, though it is unwise to rely upon swelling and hemorrhage into the eyelids and conjunctivae, as blood coming from a deep origin would, of necessity, take some time to infiltrate those tissues.

The pupils tend to contract at first, with a gradual dilatation occurring and a loss of light reaction coming about gradually. The light reflex is present in all cases seen early enough, gradually becoming more sluggish and gradually disappearing.

When the pupils become dilated and fixed, our patients die. Nystagmus is also of serious import.

The pupil on the side of greatest pressure tends to dilate and lose its light reflex more quickly. The study of the discs in the very acute stage is not of practical importance.

The deep reflexes tend to be affected early, while the superficial reflexes tend to be affected later and, if the superficial reflexes are affected early, serious cerebral injury is indicated.

The most frequently affected peripheral nerves are the sixth, seventh and eighth cranial nerves, which may be either immediately affected by interference with their continuity, or affected secondarily by pressure at their exits.

Associated with the reflexes, we have the progress of motor and sensory changes, they being shown by a primary hypertonus with irritability, and secondary spasticity, and, finally, flaccidity. The reflexes are first increased and, later, as compression becomes greater, are abolished.

The progress of these neurological findings is of importance in localizing the side of the brain suffering the primary and greater injury.

It is of importance to make frequent and



careful observations of the temperature, pulse, respiration and blood pressure.

In the primary stage of injury, shock being the predominating factor, we find the temperature subnormal, the pulse thready and fast, respiration shallow and fast and the blood pressure below normal.

As shock is overcome, these findings tend to be reversed. A relatively high febrile reaction in cranial injury is not infrequent.

X-ray is of definite value in the diagnosis of the bursting type and depressed fractures. In all other fractures of the cranium, they are not to be depended upon when reported negative.

Lumbar puncture is of definite diagnostic value when performed with a manometer hook-up, to measure the degree of increase in pressure and the presence or absence of blood.

Treatment of fracture of the skull is difficult, depending somewhat upon the inclination and experience of the physician.

As indicated in my opening paragraphs, with the exception of compound fractures, all outline of treatment should be dependent upon the indications of cerebral injury and compression.

Adequate treatment may be enhanced by careful history taking, particularly as to the etiology of the injury; the length of time between injury and presentation for treatment; the presence of unconsciousness; its duration; the presence or absence of paresis or paralysis; as well as the record of pre-existing neurological pathology and the usual blood pressure.

Following this, our primary effort is toward the combat of shock. Some of our fractured skulls die promptly from shock. Shock is best combated in these cases by keeping the patient flat, avoiding exposure by too complete an examination and by the application of external heat.

Morphine is definitely contraindicated in all cases of cerebral injury, at least until a definite diagnosis of the progress of the intracranial injury is determined. Very restless patients have increased pressure and reduction of this pressure will usually control restlessness. The bromides, luminal and other sedatives of this type may be used advantageously.

Not only should morphine be left alone, but mydriatics also. A mydriatic may mask

one of the most important groups of signs present.

It is wise to be assured that bleeding, particularly from the ears, is not the result of external injury at this site, but the use of specula and irrigations in any of the cavities of the head in these cases is dangerous and should not be used.

Superficial wounds may require immediate treatment, particularly so if bleeding or if dirty. They should be thoroughly cleansed, appropriately sutured, when indicated, and during this process observation of the underlying cranium should be carried out, as fracture may be present at this site.

The use of antitetanic serum, in prophylactic doses, is usually indicated when superficial wounds are present.

X-ray examination by several views is wise, but it should not be carried out early when shock is present, or in those cases having severe compression symptoms, when all moving and handling is dangerous.

As shock is overcome, elevation of the head with the application of an ice-bag to the head is wise.

Frequent examination of the pulse, respiration and blood pressure is always indicated. Patients with a definite lowering pulse rate with increasing blood pressure and labored breathing have definite cerebral compression, and it is at this stage of compression, or before, that treatment is efficacious. Those patients becoming completely unconscious, with falling blood pressure, fast, irregular, thready pulse, irregular or Cheyne-Stokes' respiration, and having fixation of the eyes with dilatation of the pupils, these being signs of Kocher and Cushing's fourth stage of compression, are doomed.

Associated with these examinations, there should be frequently repeated neurological examinations, especially regarding the variations of both the deep and superficial reflexes. Not only should these examinations be made frequently, but they should be recorded as frequently.

Lumbar punctures should be carried out, particularly where there are other evidences of compression, but this procedure is hazardous. In no case should the Queckenstedt reaction be made by compression of the jugular veins. Lumbar puncture is not only of diagnostic value but also of value in treatment of

cerebral compression in draining free fluid. If carefully performed, with observation of respiration, which is quickly affected by medullary compression in the foramen magnum, relatively large amounts of fluid may be withdrawn slowly and the procedure may be repeated. Ventricular puncture may also be carried out.

In two cases showing evidence of compression, one a pre-operative and the other a post-operative case, both being unmanageable because of their restlessness and mental excitation, I have had given an ethylene anesthesia while doing the puncture, during which I removed a large amount of fluid at a very slow rate. In one of these cases, respiratory failure threatened, being quickly overcome by oxygenation and hypodermatic injection of alpha-lobelin, which is a very effective respiratory stimulant.

The use of hypertonic solutions, such as sodium chloride solution up to 10 per cent, or of glucose solution up to 50 per cent, in small quantities intravenously, are very effective in reducing the general fluid level and so depleting the cerebro-spinal fluid. Magnesium sulphate in saturated solution, by mouth or by rectum and frequently repeated, is both practicable and useful.

Conservative treatment, including rest, elevation of the head, application of an ice-bag, associated with lumbar puncture and the use of hypertonic solutions and sedatives, except morphine, frequently obviate the necessity of radical intervention, and good results are obtained.

Radical surgical intervention, as stated, is indicated in compound and depressed fractures. It is also indicated in those cases in which progressive compression is not readily controlled by conservative means.

Whether this be due to hemorrhage or edema, early or late, it is probably best carried out by the classical sub-temporal decompression of Cushing, the site of choice being on the right, in right-handed individuals, and on the left, in left-handed individuals, the side, of course, being altered in those cases showing a localization to one side or the other. In some severe cases, both sides should be opened.

Operation should be performed under local anesthesia. At times no anesthesia is neces-

sary. General anesthesia definitely increases the operative risk.

At operation, a wide area of bone should be removed and those cases showing bleeding or general swelling under the dura should have the dura widely opened. Clots should be removed as well as possible and active hemorrhage should be controlled. Closure should be made without drainage as a rule because of the liability to infection.

In the after-care of these patients, we see a tremendous morbidity, which may to a large extent be avoided by a protracted convalescence with the use of mild sedatives and hypnotics, when indicated. Such unpleasant symptoms as headache and vertigo may be markedly relieved by lumbar puncture. Observation of the eye-grounds by a competent ophthalmologist at intervals, until all symptoms disappear, is helpful in gauging the diminution of intracranial tension.

The purpose of this discussion is to stimulate the idea of treatment of fracture of the skull on the basis of the physical factors involved rather than by empiricism. Empiricism tends to be unscientific, and treatment by scientific principles is the aim of modern medicine and surgery.

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### CARCINOMA OF THE PROSTATE.\*

By CHARLES P. HOWZE, M. D., Danville, Va.

The control of prostatic cancer constitutes one of the most difficult urological problems. Our present methods are far from satisfactory, and, in the large majority of cases, the treatments may be considered as merely palliative. The principal difficulties with which we have to contend are (1) the inaccessibility of the growth to any radical removal except in the very early cases, and (2) the frequent and early metastases in many cases before the onset of urinary symptoms. With these difficulties present, until some better method is brought forth than the varied ones now in use, we must content ourselves in doing that which seems the best in our hands, to prolong the patient's life and relieve his suffering. It is with this idea in view that I have reviewed a small series of twenty cases treated during the past few years. Naturally, from such a small group, very few conclusions of value can be drawn; yet, on the other hand, it has

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brought out certain points of interest which should be of aid in the management of these cases in the future. This group has also proved to me that the diagnosis is not always easy, and one should use every diagnostic means at

cinoma from the Brady Clinic, there was an associated benign hypertrophy in 50 per cent. When one stops to consider that approximately 20 per cent of bladder neck obstructions in men past fifty are carcinoma, and that one-



Fig. 1.—Carcinoma of the prostate with spasmodic hour glass contracture of the bladder, and extensive carcinomatous metastases to ischium and descending ramus of the pubis.

his command before undertaking any form of treatment.

The possibility of carcinoma occurring with benign hypertrophy should always be kept in mind, and is many times confusing. Young states that in a large series of cases of car-

half of this number are associated with hypertrophy, it presents a real problem in diagnosis, as well as in treatment.

I shall not discuss the microscopic pathology of the various types of prostatic carcinoma. From the standpoint of gross pathology and

diagnosis, it is well to keep in mind that there are a few very cellular and malignant types which, on examination, are mistaken for benign hypertrophies, due to the absence of the characteristic area of stony induration on rectal palpation. There were two cases of this type in this series, in which the enlargement felt softer than that of most benign hypertrophies. Both were thought to be hypertrophies, and operated upon supra-pubically. The tissue removed was of a gelatinous consistency, grayish yellow in color, and, on microscopic section, proved to be very cellular carcinoma. One patient died three weeks following operation, while the second lived one year, and died apparently from metastatic growth. It is in this type of growth, and those associated with hypertrophy, that the diagnosis is often difficult. In cases presenting themselves with acute urinary retention, frequently the associated edema of the gland may give a false impression at the primary examination, and, upon later examination, following the subsidence of this edema, a carcinomatous area may be definitely palpated. It is important to make frequent examinations of the gland in any case being prepared for prostatectomy, as, often following drainage, an entirely different picture is revealed.

Most primary carcinomas can usually be diagnosed by palpation. They have their origin in the posterior lobe, which lies between the prostatic urethra and the rectum, and are thus readily accessible to the palpating finger. As this lobe is separated from the lateral and median lobes anteriorly and the rectum posteriorly by a rather firm fascia, the course of spread is gradually upward under the trigone and in the seminal vesicular region. The fascia, mucous membrane of the urethra, bladder, and rectum are free from invasion except in very advanced cases. Thus, we have a growth in which there is no open space in which the cancer may grow, but it is directed upward by its surrounding fascia to the subtrigonal and seminal vesicular region, and to the posterior pelvic lymphatics. It is for this reason that the symptoms of urinary obstruction are not noted early and frequently metastasize to the pelvic lymph nodes, and the bones of the pelvic girdle are involved before symptoms call attention to the urinary tract. (Plate I.)

Bumpus, in an analysis of one thousand

cases at the Mayo Clinic, reports that two hundred and forty-three showed evidence of metastasis at the time of examination. Forty-four per cent of this group revealed involvement of the lymphatic system (inguinal glands, glands of the neck, and of palpable abdominal masses.) Five hundred and thirty-nine cases on X-ray examination showed the pelvic bones involved in one hundred and twenty-three, and the spine in one hundred and seven, with twelve of this group having metastases to the lungs. The observations reveal the importance of thorough examination and X-rays in all cases suspicious of carcinoma.

The urinary symptoms are those of bladder neck obstruction, with frequency and difficulty of urination most prominent. Pain is not an early symptom, and hematuria is much rarer than hypertrophy. As the disease progresses, the urethral lumen becomes smaller, and all of the above symptoms are aggravated. Pain, when present, is usually most frequent in the bladder and urethra. It is sometimes noted in the lower back, perineum, and legs.

The most valuable diagnostic aid is the palpating finger in the rectum, with a cystoscope or sound in the urethra. By this method of palpation it is not difficult to note the sub-urethral or subtrigonal thickness and stony induration, so characteristic of the disease. In a few cases of chronic prostatitis, there may be some doubt. Usually in such cases, the long standing history of urinary disturbance, the presence of pus in the expressed prostatic secretion, and the degree of induration is sufficient to make the diagnosis clear. The gland of chronic inflammation is usually smoother and less nodular. Primary tuberculosis might be confusing. It is very rare to find a tuberculosis of the prostate and seminal vesicles without some involvement of the epididymis, and it more often occurs in patients below the prostatic age. Prostatic calculi can be diagnosed by palpation and X-ray.

Cystoscopic examination should always be done in these cases. In some, a cystogram may add valuable information. In cases with little or no residual urine, the bladder and vesical neck may be normal. In cases unassociated with hypertrophy, sometimes a slight posterior or median bar with elevation of the trigone or trigonal hypertrophy is present. The pros-



tatic urethra grips the instrument firmly, and is a valuable diagnostic sign. The added information gathered from a cystogram is seen in a few cases with carcinomatous invasion in the region of seminal vesicals and intramural

of treatment. This is our greatest problem and seems far from being satisfactorily solved. The various methods of management now in vogue by authorities show widely divergent views, varying from a complete prostatectomy



Fig. 2.—Carcinoma of the prostate with invasion of right seminal vesicle. Cystogram showing contracted bladder with right ureteral regurgitation.

ureter. It is in this small group that the phenomenon or ureteral regurgitation is noted, with a dilated ureter and renal pelvis. (Plate II.)

Once the diagnosis of carcinoma is established, the question arises as to the best method

in early favorable cases by Young, to the other extreme of doing nothing to the diseased gland but to relieve the bladder neck obstruction by permanent suprapubic drainage. Some authorities advise removing the obstruction by perineal operation, using radium as an ad-

junct; others use an intraurethral punch operation, supplemented by radium, and some use radium alone, if retention is small.

My experience with radium is too meagre to discuss its efficacy. In only one case was it used alone. Four cases received no treatment, other than occasional bladder lavage for co-existing infection. In this group there was slight bladder neck obstruction, and they were advised to avail themselves of radium treatment at the larger clinics, where the facilities and experience for such treatments could be had. The remaining fifteen cases were treated by some surgical procedure. In no cases have I felt that I completely removed the growth by operative intervention. In some few, I believe that the removal of sufficient growth to relieve the bladder neck obstruction has resulted in a more rapid spread of carcinoma, with metastases and distressing local symptoms, than if the gland had not been touched. In one case following perineal operation, the local growth rapidly recurred, causing obstruction, which necessitated permanent suprapubic drainage for relief. This patient lived ten months after the first operation, and I feel his death was materially hastened by his original operation. There were two other cases in this group treated by perineal operation, using radium as an adjunct. One lived eight months, having no recurrence of obstructive symptoms, but rather distressing pain in the perineum and legs on urination. Death was apparently due to metastases. The second patient treated likewise was living one and a half years following operation, and has not been heard from since. The results in this group could not be considered satisfactory, and this operation in the future will be reserved for those cases in which there is some doubt of the diagnosis of carcinoma.

Five cases were subjected to suprapubic removal of the obstruction, following opening the bladder widely and removing, under vision, sufficient carcinomatous tissue to allow free passage of urine. In one of these cases radium was used. Two cases have been previously mentioned. One case died six months following operation from local recurrence and metastases, and the remaining two are of such recent date that no conclusions can be drawn as to the efficacy of this method as compared with the partial perineal prostatectomy.

One case treated by punch operation five years ago has been lost sight of.

There were six cases treated by cystostomy alone, leaving the growth untouched. It is in this group that I feel the best results were obtained. There was no operative mortality, and the patients have been more comfortable than following any other procedure. The conclusions of Bumpus, on a review of one thousand cases, point out that the average duration of life following simple suprapubic drainage was twice that of any other procedure, and that no form of treatment is so free from risks, or lessens suffering more. From my limited experience, I am in complete accord with his views at the present time.

It is difficult to decide the best method of treatment in the early cases with very slight obstruction, and no evidence of metastases. It is in this group, where minor operative procedures and radium should have their greatest application, and it is within the realm of hope that, with more experience, a great many may be permanently relieved. With this idea in view, it means the cases must be recognized at an early stage, and it is important for the general practitioners, who see these cases first, to include in their routine examination of all men past fifty a more careful history and rectal examination.

While we do not know the cause of prostatic carcinoma, it is thought by many that chronic inflammation with retention of the irritating secretion may be a factor. The fact that chronic irritation is a factor in the production of carcinoma elsewhere in the body would lead us to believe that it may at least be a contributory cause. Should this hypothesis be correct, all cases of chronic prostatitis should receive active and appropriate treatment as a prophylactic measure.

Deep X-ray therapy is sometimes valuable in the control of pain in the cases showing metastases, either at the primary examination, or, later, following operation. The pains from metastases to the pelvic lymphatics, bony pelvis, and spine, are usually manifested in the perineum and legs. In recent cases I have used a preparation of colloidal gold, recommended by Oschner, of Chicago, which I believe has been of definite benefit in the alleviation of these pains.

It is hoped that the future has something in store for this unfortunate group of cases, and that we may find some more satisfactory means of relief, if not cure.



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## THE TREATMENT OF LUPUS ERYTHEMATOSIS WITH GOLD.\*

By WALTER F. MANLEY, M. D., Roanoke, Va.

Since the first report of Schamberg and Wright<sup>1</sup> on the use of gold sodium thiosulphate in lupus erythematosis in 1927, numerous reports have appeared which tend to verify their optimistic initial report in the use of this new drug in a hitherto exceedingly recalcitrant dermatosis.

Various other gold compounds have been used by different clinicians. Reute used gold potassium cyanide. Kohrs<sup>2</sup> in 1921 reported the complete cure of lupus erythematosis following the use of krysolgan. Since 1921 most of the clinicians have used krysolgan with encouraging results.

In 1924 Mollgard,<sup>3</sup> of Copenhagen, produced a new compound of gold with thiosulphuric acid. This was called "sanocrysin" (gold sodium thiosulphate.) It is snow white, occurs in long needles, and is easily soluble in water with an almost neutral reaction.

Schamberg and Wright were the first to use this new compound in lupus erythematosis. Their results with this compound in their cases and in the patients of other dermatologists to whom they furnished the drug have been so striking that they have come to regard gold as having almost a specific effect in this disease. Of the twenty-five patients reported, the eruption disappeared in five cases, almost disappeared in six cases, improvement resulted in twelve cases (a number of these cases were still under treatment), and in only one patient was there no improvement. One patient died.

The dosage advised ranges from 10 mg. to 100 mg.—the smaller dosage in the disseminate type and the larger dosage in the more common chronic discoid type. The number of injections necessary varied from a few to over a hundred. A number of the patients reported were subjected to years of futile effort to Roentgen-ray and radium treatment not only with no curative effect but with a certain amount of injury to the tissues, rendering the condition less responsive to gold therapy.

In December, 1926, I started the use of gold in two cases of lupus erythematosis. At first the older preparation of krysolgan was used. Gold sodium thiosulphate was substituted as soon as it was obtainable. All subsequent cases have been given this drug only.

The following case records will better illustrate the results obtained:

CASE 1.—Mr. G. B. F., age forty-three, had a well developed lupus erythematosis of twenty years' standing, inflammatory hyperkeratotic patches covering the greater part of each side of the face, upper two-thirds of the nose, both auricles, and numerous coin-sized patches scattered throughout the scalp. He had received numerous radium applications during the past fifteen years with more or less temporary improvement for two or three months, only to have the condition recur. He was given two additional doses of radium early in 1926 with the same results as before, i. e., clinical cure for about three months. On December 15, 1926, the patient was given .005 gm. of krysolgan. After six more injections of .01 gm. at weekly intervals there was no clinical sign of improvement although no new lesions had developed in that time. No reactions occurred at any time. On April 11th, the patient was given 50 mg. of gold sodium thiosulphate in 5 c.c. distilled water intravenously. At weekly intervals thereafter he received 100 mg. for ten weeks. The improvement was extremely slow and it was decided to increase the dose. On July 9th, 150 mg. was administered without any ill effect. One week later 200 mg. was given and after another week 250 mg. The involution of the lesions was evident and the patient himself was sure of it. The 250 mg. dose was continued for twenty weeks, without any ill effect either general or focal. At the end of this period all that remained was the smooth white atrophic scarring at the site of the previous lesions.

After a month's rest the patient was given 100 mg. doses every two weeks for twelve doses. His last injection was on June 24, 1928. Since that time the lesions have remained well and no new lesions have developed.

The stubbornness of this case may have been ascribable to the many radium treatments over a period of fifteen years before gold treatments were instituted. This patient was last seen in February, 1929, eight months after the last injection of gold. At this time he presented an

\*Read before the Roanoke Academy of Medicine, January, 1929.

adenitis of the left cervical region involving the posterior cervical nodes. One of these small nodes was excised and the pathologist reported that it was tuberculous.

CASE 2.—Mrs. J. P. H., age forty-five, presented a typical lupus erythematosus of eighteen years' duration. The upper two-thirds of the nose was covered with hyperkeratotic crusted lesions. The cheeks adjacent to the nose were also involved for three-fourths of an inch out from the nose. The patient had received six roentgen-ray treatments twelve years before without results. On March 5, 1927, she received one injection of .01 gm. krysolan. One week later another injection was given. On March 23rd, she received her first injection of 50 mg. of gold sodium thiosulphate. Injections were continued using the 100 mg. dose at intervals of every two weeks. After the second injection of the gold sodium thiosulphate, the patient complained of a marked edema of the lupus lesions only, which began about six hours after the injection and lasted for twenty-four hours. This subsided without any general symptoms. Marked improvement was noted within the two weeks following this focal reaction. The patient received ten more injections. Then she was given a month's rest and treatment continued at monthly intervals since, although the lesions were clinically well and have been since August. In all, she received sixteen treatments, all of which were gold sodium thiosulphate except two. This case probably would have responded sooner had it been possible to treat her at shorter intervals but this could not be arranged due to the distance at which the patient lived.

CASE 3.—Mrs. B. W., age fifty-five, presented an extensive lupus erythematosus of fifteen years' standing. The face was almost entirely covered, the eruption extending across the nose and involving the greater part of the cheek. The borders were elevated and crusted while the center of the cheeks presented an area of cicatricial atrophy. This case was one of unusual severity. The only treatment the patient had ever received was various topical applications. Fortunately, no radium or Roentgen-ray had ever been applied. On August 12, 1927, she was given 50 mg. of gold sodium thiosulphate intravenously. One week later 100 mg. was given. At her third visit the condition was markedly improved. Injec-

tions of 100 mg. were continued at weekly intervals for four more weeks at which time the condition had entirely involuted, leaving only a thin smooth atrophic scar tissue at the site of the previous lupus. After a month's rest, four more treatments were given, 100 mg. every two weeks. She has received no treatment since December 14, 1927. She has been seen several times since and no recurrences have occurred.

CASE 4.—Mr. F. C. R., age thirty-two, presented a lupus of three years' duration. Slightly infiltrated coin-sized patches were present on both cheeks and sides of the neck. The patient had never had radiation. On March 19, 1927, the patient was given 50 mg. of gold sodium thiosulphate intravenously. One week later 100 mg. was given after which there was some edema over the discoid patches. After ten weekly injections of 100 mg. were given the condition had improved about 50 per cent. The dose was then increased by 50 mg. jumps up to 250 mg. and kept there for a total of five injections. At this time the only remains of the former patches were very inconspicuous atrophic lesions at the site of the previous lupus. A month's rest was given and 100 mg. doses resumed at fortnightly intervals for six weeks. Twenty-two injections in all were given. No reactions were noted at any time except the focal reaction after the second treatment. There has been no recurrence of his condition.

CASE 5.—Mr. B. C. W., age fifty-eight, was seen on October 23, 1927. He presented a lupus erythematosus of four years' standing. The lesions were located on the cheeks in front of the ears and on the auricles themselves. No treatment other than topical remedies had ever been received. On October 23, 1927, he was given 50 mg. of gold sodium thiosulphate. One week later 100 mg. was given. After the fourth injection, all evidence of the lupus had disappeared except the typical atrophic scarring. Two more injections were given, making six in all. The patient was not seen again until March 28, 1928, at which time the lupus had recurred at their previous sites. He was started out with 100 mg. of gold and after the second injection developed a polymorphous erythematous generalized pruritic eruption which was considered to be a drug eruption and treatment was interrupted and injections of sodium thiosulphate were given twice



weekly for three weeks at which time the generalized eruption had entirely disappeared. He was then started on gold sodium thiosulphate again with a 25 mg. dose. A week later he received a 50 mg. dose. After this four 100 mg. doses were given and the lupus was entirely gone. He has had no treatment since June 16, 1928. There has been no return of his condition to date.

CASE 6.—Mrs. C. P. R., age twenty-eight, was first seen in September 15, 1928, at which time she presented an extensive disseminate type of lupus erythematosus of the subacute type without constitutional symptoms. The entire face, forehead, and ears were a solid sheet of lesions, only a small area around the mouth being spared. Numerous pea-sized lesions were scattered over the neck, upper chest, arms and forearms. The condition had been present for four months. Her past history revealed a long standing arthritis and frequent sore throat. Injections of gold sodium thiosulphate were begun the day after tonsillectomy, a dose of 10 mg. only being given. A second dose of 25 mg. was given a week later. Two hours after the second injection the patient complained of nausea, chilliness, headache and a moderate edema of the face. This lasted for several hours and subsided. One week later the treatment was stopped due to the systemic reaction complained of and the fact that several new lesions had appeared on the dorsal surface of the hands and fingers. The patient was advised to rest for two weeks during which time she received fifteen grains of quinine daily. At the end of this interval she was feeling much better and her lupus was markedly improved and the lesions were no longer edematous. On October 20th, she received her third injection of gold sodium thiosulphate, only 10 mg. being given at this time. She tolerated this well and weekly injections have been given since. The last injection was given on November 20th, at which time the face was practically well and the lesions on the other parts were 75 per cent improved. No new lesions had developed. She is still under treatment. Had the interval between the removal of the tonsils and the beginning of the gold therapy been longer, I doubt if the systemic reaction which followed the earlier injection would have occurred.

I realize that six cases constitute too small a series to draw any conclusions from them

alone. However, the results tend to substantiate the early claims for this line of therapy.

#### CONCLUSIONS

1. The use of gold sodium thiosulphate in six cases of lupus erythematosus have been reported. All five of the chronic discoid type are clinically cured. One subacute disseminated case is still under treatment, and rapidly improving.

2. Of the five cases of the chronic discoid type in which treatment has been completed, the number of treatments given ranged from eleven to fifty-two. Case 1, requiring fifty-two injections, it will be noted, had been treated with radium at intervals for the past fifteen years.

3. The duration of the disease does not seem to have any bearing on the number of treatments required.

4. The only reaction noted in the chronic discoid type was a focal reaction in the affected areas with edema, erythema and tingling. One patient developed a polymorphous erythematous eruption which disappeared in two weeks following cessation of treatment.

5. Only one case recurred. This occurred three and a half months after a series of six injections and cleared up again after another six injections, and has remained well ever since.

6. Focal infections seem to predispose to systemic reactions in gold therapy like they do with arsphenamine.

7. In one case, tuberculous adenitis developed eight months subsequent to cessation of gold therapy but the lupus has not recurred.

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#### DIAGNOSIS OF GALL-BLADDER DISEASE.\*

By FLETCHER J. WRIGHT, M. D., Petersburg, Va.

The diagnosis of gall-bladder diseases cannot be intelligently discussed without taking into consideration the etiology and symptoms. I shall deal chiefly with the inflammatory diseases of the gall-bladder—acute and chronic, with and without stones,—and the differential diagnosis from other conditions.

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A predisposition to the development of cholecystitis, with or without stones, exists in the middle-aged obese person of sedentary habits, more often in women of such a type, and in those who have had one or more pregnancies; hence the phrase—"fair, fat, forty, and fruitful." These are the cases that develop a biliary stasis and imperfect drainage of the gall-bladder, with a tendency to stone formation.

One may have cholesterol stones without infection for a time, but sooner or later the irritation of the stones, plus infection, sets up inflammation. It is generally conceded that

case. The history of infections, local or general, in a middle-aged obese person with chronic digestive disturbances, such as nausea, vomiting, etc., moderate or severe pain in the epigastrium or the right hypochondrium, radiating to the right scapula—the onset being with or without chill, or chilliness, fever and leucocytosis, depending on the virulence of the infecting organisms—with a local tenderness and rigidity of the right rectus, or even the whole abdomen, will always lead us to suspect gall-bladder disease.

All cases are not so clear cut, and the diagnostic acumen of the best men is sometimes

	CHOLECYSTITIS	APPENDICITIS	RENAL COLIC IN RIGHT SIDE
Onset	Sudden or insidious	Usually sudden	Sudden
Pain	Moderate or severe in epigastrium or right hypochondrium	Moderately severe, colicky at first in epigastrium or general, later localizing at or about McBurney's point	Usually severe in right kidney region, radiating to groin
Chill or Chilliness	Usual in acute cases	Rare	None
Fever	Always in acute cases and may be high	Normal to moderately high	None in simple renal colic
Leucocytosis	Normal to 30,000	Normal to 18-20,000	None
Local tenderness and rigidity	Present in region of gall-bladder; may be general rigidity at first	At first general, later localizing in right iliac region	Kidney may be somewhat tender, usually not
Nausea and vomiting	Usually present in acute cases	Usual	Not usual
Jaundice	Not present unless common duct is obstructed	Not present	Not present
Blood in urine	Not present	Not present	Present
Evidence obtained by X-ray	Positive in some cases	Not advisable to use in acute cases. Of some value in chronic	Invaluable in detecting stones or other abnormalities

a hepatitis or an inflammation of the bile ducts of the liver precedes a cholecystitis. While cholecystitis more frequently occurs in the middle-aged obese woman, it is sometimes found also in young and thin persons.

General infections, such as typhoid fever, septicaemia and pyaemia, appendicitis, infected tonsils, sinus or teeth, are frequently followed by cholecystitis. It may be secondary to gastric or duodenal ulcer. Therefore, to arrive at a diagnosis, we have to consider the history, age, sex, habits, occupation, symptoms (general and local) and laboratory findings.

I know of no better way to approach the subject than to describe a more or less typical

taxed. Duodenal drainage at times is a valuable aid.

I will not refer to the X-ray in diagnosis, since that is being covered by another paper, except to say that it is of valuable aid, and cannot be dispensed with in doubtful cases.

In the differential diagnosis, we have to consider—appendicitis, renal colic due to stones or obstruction of ureter, gastric crises, angina pectoris or coronary occlusion, gastric or duodenal ulcer (especially perforation in these cases), cancer of the gall-bladder, and lead colic.

The following table is of aid in making a differential diagnosis:



Angina pectoris or coronary occlusion occurring frequently in the same type of person, though less frequently in women, is not always an easy differential problem. In typical angina with substernal, boring, burning pain occurring after exertion, referred to the left inner arm or neck, together with hypersensitive skin over left upper chest, with or without changes of cardiac rhythm, there is no trouble in making the distinction. The atypical cases showing most pain in epigastrium or gall-bladder region with a tender and enlarged liver are the ones most apt to confuse. The coronary occlusion with leucocytosis and fever is the most confusing, but in these cases the fall in blood pressure, together with the disturbed rhythm of the heart, and pulmonary congestion, will usually enable one to make the proper decision. Just such cases should make us use every available diagnostic aid when in doubt, lest we advise surgery of the gall-bladder in an angina case.

Tabes can be ruled out by negative eye findings, normal reflexes, or a spinal fluid Wassermann when in doubt.

In gastric or duodenal ulcer, the pain is usually relieved by vomiting food or by taking alkalies. The pain, being a hunger pain, comes on sometime after meals, and often in the night when the stomach is empty. There is seldom fever or leucocytosis unless there is a local peritonitis. Often as a result of adhesions between duodenum and gall-bladder, an X-ray is necessary to decide the issue. If perforation of gastric ulcer occurs, there is severe abdominal pain, nausea and vomiting, with shock, anxious facies, at first flat and rigid abdomen, later becoming distended. The same symptoms may be produced by a perforation of any hollow viscus, including the appendix, and it is often impossible to make a pre-operative diagnosis. The age of the patient may not help in differentiating this type of case, but usually the gall tract infections occur in the obese and the ulcer in the thin type.

Cancer is suspected if there is family history of such, with an addition of gall-stone colic for a number of years, especially when a palpable tumor can be felt in the region of the gall-bladder, or there is a persistent jaundice of unvarying intensity, which is not present unless the common duct is obstructed, together with rapid loss of weight and evidences of an extreme toxæmia with a severe second-

dary anemia. Usually, however, cancer of the gall-bladder is secondary to cancer of the stomach or some other viscus.

Lead colic can be recognized by the history, lead line on the gums, and stippling of the red cells.

### ACUTE PANCREATITIS.\*

By A. P. JONES, M. D., Roanoke, Va.

The argument usually advanced for discussing a comparatively rare condition before a group of men chiefly interested in general medicine is that it should be held in mind when considering any involvement of the area in which this condition occurs.

In the present instance, I am inclined to believe that this argument has no true application, for with acute pancreatitis, as with so many other acute abdominal conditions, the consideration of most vital importance is not an exact diagnosis but a prompt recognition of the fact that an emergency has arisen which demands immediate surgical intervention.

Many cases have been reported and the condition has been widely discussed, but Opie, of St. Louis, has contributed more than any other one man to our present knowledge of the condition.

The present study is based on seven cases operated upon in the Jefferson Hospital by Dr. Trout and myself during the past twenty years.

As to the etiology there is still considerable doubt. Opie has clearly demonstrated that in some cases a gall-stone of exactly the right size to block the ampulla of Vater without at the same time blocking the duct of Wirsung, will allow the entrance of bile into the pancreatic duct. He then showed experimentally that normal bile injected into the pancreatic duct of dogs would produce a pancreatitis.

This explained beautifully the sequence of events, but does not account for all cases, as many of these patients do not have gall-stones.

Of our own cases three had gall-stones while four did not, and in none of them were we able to demonstrate a stone in the exact position to account for the trouble. The ages of the patients ranged from twenty-four to sixty-four, three of them being women and four men.

The symptoms are those of a very rapidly

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developing, very acute and very severe abdominal inflammation.

In the beginning, the pain and tenderness are much more severe in the upper abdomen, especially in the epigastrium; later, the whole abdomen becomes involved.

Nausea and vomiting are usually present, temperature is only slightly elevated, and there is a considerable elevation in the leucocyte count. In our cases the leucocyte count varied from 11,000 to 26,000, with a high percentage of polymorphonuclears.

In these seven cases a correct pre-operative diagnosis was not made in a single case, and in only one was it seriously considered as a possibility before the abdomen was opened.

After the abdomen has been opened, however, the diagnosis usually becomes self-evident, because of the constant presence of two striking features, namely, thin blood-stained fluid and the presence in the omentum of the grayish-white spots of fat-necrosis, due to the liberation of pancreatic juice from the damaged organ. In six of our seven cases both bloody fluid and fat necrosis were found, while in the remaining case, which was operated upon less than twenty-four hours after the onset of the disease, only bloody fluid was found.

There is no medical treatment for the disease, and surgery is curative only when the operation is promptly performed.

As in so many acute abdominal conditions, the chance for cure varies inversely as the square of the distance—in time—from the onset of the disease to operation.

At best, the mortality rate is high, most reports putting it around 50 per cent, and in this series four of the seven died, or 57 per cent.

As to the type of operation, the essential feature is free drainage, this not only from the standpoint of the inflammatory process but even more to divert the leakage of the destructive pancreatic juice.

Should gall-stones be present, they should be removed and the gall-bladder drained.

In the favorable cases, convalescence will be prolonged, and close attention will be necessary to prevent the formation of secondary abscesses.

In the cases which finally terminate fatally, this same complication of secondary abscess is frequently encountered, and occasionally the

distressing occurrence of a pancreatic fistula plays a part.

To summarize:

1. We are dealing with a fulminating abdominal catastrophe, which, if untreated, will rapidly prove fatal.
2. Prompt recognition of the seriousness of the situation is imperative.
3. Surgical drainage should be instituted at the earliest possible moment.

## POSTURAL HYPOTENSION—A REPORT OF TWO CASES.\*

By O. O. ASHWORTH, M. D., Richmond, Va.  
From the Medical Department of St. Elizabeth's Hospital.

Studies in postural hypotension have been made by various observers. The change in position of the body from the recumbent to the erect position throws a definite strain on the organs of circulation, determined by the gravitation of the blood. Normally on change from the recumbent to the standing position, the splanchnic vasomotor tone over-compensates the hydrostatic effects of gravity. The blood pressure response upon assuming the erect from a supine position is a slight drop in systolic pressure, a slight rise in diastolic pressure and a rise in pulse rate. Mortensen, from his studies of normal and diseased persons, concluded that a drop of more than six to eight per cent in the systolic pressure on change of posture, recumbent to erect, was evidence of mitral insufficiency. Individuals in whom there is excessive gravitation of blood into the extremities and splanchnic area are victims of physical weakness, nervous instability, and they may suffer from headache, dizziness, tinnitus, and a feeling of fatigue. As a matter of fact, low blood pressure is associated with almost as many abnormal conditions and causes perhaps more inconvenience than high blood pressure, except when the high blood pressure is extreme.

*Case 1.* Miss A. H., white, of American birth, aged 65 years, was first seen May 16, 1927. She complained of syncopal attacks, dizziness, a drawing sensation in the occipital region, and generalized headaches. The onset of the syncopal attacks was two months prior to this time, when she noticed that if she remained in the erect posture for any length of time, she would become gradually weaker and would finally "faint." These spells had become more frequent, and at the present time

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if she stands on her feet for more than one minute she becomes unconscious. She says it is an effort for her to breathe when talking in the sitting posture.

*Family History:* Irrelevant.

*Past History:* In childhood she was underweight until 13. At 18 she had "pleurisy and an abscess in the left lung." Since this time, she has not been ill enough to go to bed until three years ago. The gall-bladder containing sixty-three stones was removed in July, 1925. She has noticed that there has been no visible sweating during the past year.

*Physical Examination:* The patient is five feet, two and one-half inches tall, about thirty pounds overweight, having gained from 130 to 160 pounds during the past year. The skin is slightly dark and is dry. She looks about her age. The mucous membranes are slightly pale. No cyanosis. The distribution of body hair is normal. The hair is thin and rather coarse. *Eyes:* Conjunctiva is clear. Extrinsic and intrinsic muscle movements normal. Pupils are round and equal. Fundi and visual fields are normal. *Neck:* There are no enlarged lymphatic glands, and the thyroid is not enlarged. *Mouth:* About half of her teeth have been extracted. Those that remain appear in good condition. Gums are normal. Pharynx is slightly injected. Tonsils are buried. No purulent secretion could be obtained. *Thorax:* Breathing is slightly shallow, expansion equal. Breasts normal. There is no abnormal percussion dullness. *Heart:* Borders within normal limits to percussion. Apex impulse is not visible or palpable. Sounds are of good quality at the apex and base. The second pulmonic is slightly accentuated. No murmurs. Pulse is full, regular, and fifteen to the quarter minute. *Lungs:* Clear throughout. *Abdomen:* Obese, muscles flabby. There is general tenderness to deep pressure. *Extremities:* Normal; reflexes are present and normal.

*Laboratory Examinations:* Blood: Routine examination normal except for evidence of slight secondary anemia. Wassermann negative. Blood urea nitrogen 19. Intramuscular phenolsulphonethalein 60 per cent in two hours. Urine: Twenty-four hour specimen 1800 c.c. Specific gravity 1010. Occasional hyaline cast. Otherwise normal. Basal metabolism minus 16.

The blood pressure was 170 systolic, 110 diastolic when recumbent, dropping to 110/90

when sitting, and to 80/50 upon standing; at which time the patient became unconscious. The pulse rose from 60 to 70 per minute. The patient always complained of pain in the pit of the stomach when becoming unconscious and returning to consciousness. Within ten minutes the blood pressure had returned to 165/110. These readings were repeated upon several occasions and they never varied more than ten points.

*Medication:* Digitalis was given according to the Eggleston method but did not stabilize the blood pressure. Caffein did not prevent the fall in blood pressure and syncopal attacks; nor did hypodermic injections of pituitrin when given at four-hour intervals benefit. An abdominal support and general massage makes her feel generally better. Thyroid extract given in dosage as high as six grains per day in combination with pituitary extract and ovarian residue over a period of two months apparently had no effect in stabilizing the blood pressure readings. Adrenalin caused a slight rise in the systolic pressure, with no change in the diastolic pressure. Ephedrin hydrochloride, 3/4 grain, was given and blood pressure readings taken at hourly intervals for five hours. The readings were as follows: 168/95, 176/102, 176/102, 155/90, and 155/90. The blood pressure was 162/90 before the administration of the drug, and when she was allowed to stand for one minute, the blood pressure dropped as previously with resulting unconsciousness. She was last heard from February 20, 1929, and reported that she was able to be up about one-fourth of the day, but had no endurance for work of any sort.

*Case 2.* Miss A. B., aged 55, an editorial writer, was first seen June 4, 1927. She complained of shortness of breath, pains in the region of the heart, numbness of the extremities, aching in the neck and occipital region, lack of endurance, quivering in the abdomen, and heaviness of the extremities. The onset of the symptoms was five or six months prior to this time. The ankles swell at times and she voids from two to three times at night.

*Past history and family history* irrelevant. She is an obese, mentally active individual. The skin is dry. There is no cyanosis of lips or hands. The thorax is normal. Examination of the heart and lungs, including electrocardiographic studies, negative. The abdomen is obese and muscles relaxed. Reflexes normally present.

*Laboratory Examinations:* Catheterized specimen of urine shows a few pus cells, otherwise negative. Twenty-four hour urine examination normal, except that the night volume is twice the day volume. Routine blood examination negative except for mild secondary anemia. Wassermann negative. Blood sugar 102. Basal metabolism minus 11.

Repeated blood pressure readings with patient recumbent have varied between 145/90 to 165/110; when sitting, 115/80 to 125/90; and standing, 98/60 to 108/70. The pulse rate 66 to 80. She feels well after lying in bed for a few days at a time, but has no endurance. Digitalis, caffeine, ephedrin, strychnine, thyroid extract, and pituitrin were administered in therapeutic doses, but have had no apparent effects upon stabilizing the blood pressure. An abdominal support makes her feel generally better. She will not tolerate massage.

The second case reported would seem to be only a milder form of the same vasomotor disturbance noted in the first case, though experiments have not been carried out to find whether there is a deficiency in response of the vegetative nervous system.

*Discussion:* A careful study of postural hypotension has been made by Bradbury and Eggleston. Three cases, a white male of 39, a white male of 50, and a white male of 67, were similar in almost every detail to the cases herein reported. Each case showed inability to perspire, a lowered basal metabolism, and each felt much worse during the heat of summer, and had nocturnal polyuria. The routine laboratory examinations were essentially normal, except that there was moderate secondary anemia and the urea nitrogen was always at the upper limits of normal. The authors present the following summary of their studies:

1. These three cases showed a total loss of peripheral vascular tone and a loss of normal mechanism by which blood pressure is maintained in different parts of the body.

2. There seemed to be some extensive disturbance in the functional activity of the vegetative nervous system.

3. The heart rate was uniformly slow, unaffected by the large changes in blood pressure following change in position of the body.

4. The sympathetic accelerative control of the heart was impaired. Atropin did not accelerate the heart rate, and pronounced fall in blood pressure caused no compensatory increase in rate.

5. The responsiveness of the vagus to pronounced elevation of blood pressure (posture and epinephrin) seemed to be largely wanting.

6. Both cardiac acceleration and augmentor functions of the sympathetic can be stimulated by epinephrin. In these cases, such stimulation did not restore the capacity to maintain the blood pressure level in the face of the influence of gravity.

7. The responsiveness of the vasoconstrictor endings of the sympathetic to stimulation by adrenalin was much impaired or entirely lost.

8. The inability of these patients to sweat was not due to defect in sweat glands or lack of their ability to respond to the stimulation of the sympathetic endings or to abnormally lowered blood pressure.

9. Efforts to cure these patients or control their disorders were unavailing. These efforts included the administration of thyroxin, epinephrin, dried suprarenal substance, mixed glands, strychnine, digitalis, and the enforced consumption of sugar and water.

10. Paralysis of sympathetic vaso-endings seems to be the only adequate explanation of the blood pressure reactions observed. It accounts for the absence of vasoconstriction after injection of epinephrin. It also explains the total absence of the normal vasomotor control by which blood pressure is maintained at a nearly constant level in the face of changes in the position of the body in normal persons.

Bradbury and Eggleston remark that no cases have been previously reported of such wide fluctuations in blood pressure upon change in the position of the body, and the case of the first type herein reported is probably very rare. Upon assuming the erect posture, increase in the diastolic pressure and a drop in the pulse pressure are to be used as measures of physical fitness. It would seem that in normal individuals an abnormal elevation of diastolic pressure is the usual cause of lowered pulse pressure in the erect position. The rise of the diastolic pressure is an index to the response of the vasomotor mechanism to assist the heart in maintaining circulatory equilibrium against the force of gravity. In the second case, physical signs and symptoms including electro-cardiographic studies seem to indicate milder reactions in the same type of case. The outlook in the treatment of this type of case is most discouraging.



## A STUDY OF SYPHILIS IN EPILEPSY.

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Sir William Osler in his text-book of 1902 makes the statement that convulsive seizures due to syphilis are very common. Noguchi in a study of fifty-one epileptics, found 20 per cent positive and 6 per cent doubtful Wassermann reactions in the blood, although he found only 4 per cent positive, and 2 per cent doubtful Wassermans in the cerebrospinal fluids.

On the other hand, Shanahan and Munson, after a very comprehensive study of the clinical histories of 4,100 cases of epilepsy, found only 133 cases of syphilis, or 3.2 per cent.

Novick of the Public Health Service noted only 2.2 per cent of 231 cases of epilepsy with syphilis.

The Craig Epileptic Colony found only 1.80 per cent positive Wassermans on 2,240 bloods.

The relative incidence of syphilis in epilepsy is at very great variance, although from excellent authorities, and just how to reconcile this great difference is a task which makes one wonder. Possibly the convulsive seizures found not infrequently in general paresis or the meningo-vascular types with an irritation of the meninges accounts for many others. Suffice it to say that the series in which we are directly interested presents no such high percentage of syphilis as that of Osler and others, and in this group, paresis and the interstitial type of neuro-syphilis have been carefully excluded, both clinically and serologically.

Many of the current discussions of epilepsy approached from the lay or theoretic angles must in our opinion be discarded as non-existent in fact. We are not, however, prepared as yet to deny *in toto* that a true epilepsy may not be caused by the treponemata, but a careful study of the pupillary reflexes, cranial nerve palsies, and other paralyses, even with positive serology, makes one doubt actually whether this is a case of epilepsy vera, or perhaps a true epilepsy implanted on a meningo-vascular neuro-syphilis.

In the series of epileptics studied by us at the Central State Hospital including the entire population of epileptics, each patient having a blood and spinal fluid Wassermann, mastic test, globulin, and cell count, together with a clinical survey, the following results were obtained: There were fifty-eight female patients, and 107 males, making a total of 165

epileptics. There were no positive blood Wassermans in either of the sexes. Two female patients gave a 1 plus on spinal fluid, with nothing corroborative. Five gave a slight trace of globulin with no other concomitant finding that might be expected. One of these patients had a suggestive fixed pupil with sluggishness in the opposite pupil, and a generalized lymphadenopathy, so we conclude that we might be justifiable in assuming syphilis. She was accordingly put on anti-syphilitic treatment in the form of the arsenicals intravenously, and five intraspinal treatments, but with a gradual but unmistakable deterioration. Of the male epileptics, one gave a complete complement fixation, with negativity of all other phases, but was undoubtedly syphilitic. Two cases with a 2 plus Wassermann, with no positivity on other phases and nothing clinically that could be made out, were disregarded. The 4 plus male gave a history of epilepsy from childhood, with no congenital syphilitic stigmata. We must conclude that his syphilis was acquired long after the manifestation of epilepsy and could play no role as an etiologic factor.

None of the spinal fluids in the entire group gave a positive mastic. cells were not above four, and thirteen gave a very slight trace of globulin which I think must be disregarded.

### CONCLUSIONS

We believe that syphilis is a negligible factor in epilepsy, and is coincidental, rather than etiologic, and that little if any improvement is to be expected from therapy as it has to do with epileptic seizures.

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From the Service of Syphilology, Central State Hospital, Petersburg, Va.  
*Medical Arts Building.*

## LESIONS OF THE AIR AND FOOD PASSAGES.\*

By E. G. GILL, M. D., Roanoke, Va.

Foreign bodies of an organic nature, if not promptly removed from the tracheo-bronchial tree, will produce lesions which prove fatal, and the same is true of inorganic foreign bodies of a prolonged sojourn. Consequently,

\*Read before the fifty-ninth annual meeting of the Medical Society of Virginia, at Danville, Va., October 16-18, 1928.  
This paper was illustrated by lantern slides.

we include foreign bodies in the list of lesions found in the air and food passages. As a method for the safe and successful removal of foreign bodies, direct endoscopy first established itself and still remains without a rival, but its range of usefulness has been extended to diagnosis and treatment in such pathologic conditions in the lower air passages and esophagus as can be directly inspected by the endoscopist. Neoplasms of the tracheo-bronchial tree can be divided into benign and malignant. The site of the lesions may be anywhere from the larynx to the periphery of the lungs.

#### MALIGNANT DISEASE OF THE LUNG

A review of the literature on this subject indicates that there is a definite increase in primary cancer of the lung. McCrae states that primary cancer more often involves the bronchi, the lung tissue being secondarily invaded.

#### BENIGN NEOPLASMS OF THE TRACHEO-BRONCHIAL TREE

Jackson states that true primary growths of the tracheo-bronchial tree, though not frequent, are by no means rare. These primary growths include primary papillomata and fibromata as the most frequent, aberrant thyroid, lipomata, adenomata, granulomata and amyloid tumors. These conditions can be safely and accurately diagnosed by use of the bronchoscope.

#### CYST OF THE LUNG

Moore reports an interesting case of multiple cyst of the right lung in a patient who was referred to him for bronchoscopy because of productive cough of seven years' duration.

#### FIBRINOUS BRONCHITIS

The writer reported a case of this type in the *VIRGINIA MEDICAL MONTHLY*, November, 1928. Bronchoscopic removal of fibrinous cast relieved the atelectasis of the left lung.

#### SYPHILIS OF THE TRACHEO-BRONCHIAL TREE

Syphilis of the tracheo-bronchial tree is relatively rare as compared to laryngeal involvement. Hemoptysis may have its origin from a luetic ulceration. Diagnosis is made by endoscopy, Wassermann, therapeutic tests and elimination of tuberculosis.

#### BRONCHOSCOPY IN ASTHMA

Jackson states that bronchoscopic aspiration is the most powerful aid recently added to the

medicinal treatment of asthma. The writer has been able to relieve a number of asthmatic patients by this method of treatment where medical treatment had failed.

#### ATELECTASIS OF THE LUNGS

A review of the literature on this subject reveals many cases that have been relieved by bronchoscopy.

#### LESIONS OF THE ESOPHAGUS

The esophagus may be the seat of both benign and malignant growths. Benign growths are rare as compared to malignant ones.

#### CANCER OF THE ESOPHAGUS

St. Clair Thomson states that more than one-half of all esophageal lesions are due to carcinoma, and that in patients over forty years of age with obstinate dysphagia not quite 90 per cent prove to be malignant.

Syphilis of the esophagus is a very rare affection.

#### ESOPHAGEAL STENOSIS

Swallowing of a caustic alkali is the most frequent cause of stenosis of the esophagus. This is especially true in children. Malignancy comes next as a cause for esophageal stenosis.

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2. Bronchoscopy and Esophagoscopy, Jackson's Second Edition.  
711 South Jefferson Street.

#### DISCUSSION.

DR. E. U. WALLERSTEIN, Richmond: Dr. Gill has given a number of very interesting slides here. I think he has emphasized the foreign-body work instead of the diagnostic and therapeutic work. As he so forcibly brought out, however, ninety per cent of bronchoscopy and endoscopy, in spite of foreign-body work, is treatment and diagnosis. This morning Dr. Cole showed a very interesting series of bronchograms. I have seen Dr. Cole do this work. He does it very splendidly in that he avoids bronchoscopy by introducing a catheter and injecting lipiodol. That is a much easier procedure than bronchoscopy. I want to bring out the importance of bronchoscopy, however, because in bronchoscopy we can do a number of things in addition to the simple instillation of lipiodol. First, we can determine whether a foreign body is there. Very often the foreign body is non-opaque, so that it cannot be detected by the X-ray. Next, if there is considerable secretion in the lungs, it is very important to remove this secretion. At the same time you are diagnosing it you are also helping the patient by removing this secretion. I believe ninety per cent or more of cases of acute suppuration of the lung can be cured now if taken in time.

As to foreign-body work, I do not think it is necessary to discuss it. We have seen some very



interesting cases on the screen, and I think Dr. Gill is to be congratulated on them.

There is another series of cases that are very well treated by esophagoscopy, and those are the cases of esophageal spasm or cardio-spasm. They are very easy to treat and relief is usually prompt.

### ABDOMINAL ANEURYSM—REPORT OF A CASE.\*

By GORDON HASTINGS, B. S., M. D., El Dorado, Ark.

Patient; a colored female domestic servant of 52, on September 16, 1926, requested medical service. She complained chiefly of general malaise, loss of weight, asthenia, sore throat and mouth, and a skin eruption. Physical examination showed usual findings for insidious pellagra, along with a rather profuse leukorrhea, which was taken as a Neisserian infection. Physical examination was otherwise obviously negative and the usual treatment was instituted. The patient later seemed to be improved.

On September 23, 1926, patient was taken rather suddenly worse. At this time the physician requested urinalysis which showed slight trace of albumin with occasional granular and hyaline casts; blood pressure 106/65. A diagnosis of interstitial nephritis was made and the customary treatment begun. On October 8th the urinalysis continued to show albumin and casts; sp. gr. 1.008.

November 6th: urine negative; B. P. 126/?.

November 16th: reported improving.

December 6th: reported improving.

The patient was not heard from again for three months, at which time a new syndrome had developed. Her chief complaint at this time was dragging pain associated with a feeling of weight and a lump in left side, the latter of which was of short duration. Physical examination showed marked emaciation, asthenia, and the patient was undoubtedly moribund, rapidly progressing toward imminent dissolution. Skin showed evidence of what was taken to be either previous pellagra or syphilis, or both. Mucous membranes were pale; eyes, ears, nose and throat essentially negative; chest showed marked emaciation. Moderate rachitic development. Respiratory excursion symmetrical, but shallow—due to pain upon deep inspiration. There were a few scattered rales in both bases; breath sounds normal; procussion showed normal pulmonary resonance. There was no cough and patient complained of no deep thoracic pain;

cardiac sounds were weak and of poor muscular character. There was no cardiac asthma. The pulses were thought, doubtfully, to be unequal in force. There was undoubtedly an arrhythmia of rate, force and volume. Heart sounds were persistently irregular which was taken to be auricular fibrillation. There was no cardiac hypertrophy, and no valvular lesion. Examination of chest was otherwise of no significance; abdomen rather scaphoid; no ascites, no shifting dullness; liver not palpable and with normal dullness upon procussion. Left upper quadrant showed pulsating tumor, synchronous with the heart sounds which, upon palpation, seemed to be about the size of an orange. A mass seemed to project from under the left costal margin, extending from a position in close proximity to the left mamillary line to the lumbar region where its own dullness was lost by extending into the normal lumbar dullness. Its lower border encroached on a line drawn transversally through the umbilicus. The area over the mass showed marked cutaneous hyperaesthesia. Patient was tender upon palpation and complained bitterly when pressure was made. She persistently assumed a right-sided recumbency. She was exquisitely tender about region of left lumbar spine and complained of darting paroxysms of pain which extended upward to the left shoulder and not infrequently downward as far as the left femoral region. No other palpable masses noticed. Left femoral pulse wanting; right present but rather faint.

Unfortunately, the use of a stethoscope over the tumor was inadvertently omitted. No genital examination was made; extremities with the exception of marked emaciation were essentially negative.

#### Impression:

1. Abdominal aortic aneurysm.
2. Syphilis.
3. Arteriosclerosis.
4. Chronic myocarditis.
5. Chronic interstitial nephritis.
6. Polycystic kidney.
7. Splenomegaly.
8. Pedunculated leiomyoma.
9. Pyonephrosis.
10. Foecal impaction.

Because of the rarity of aneurysm attacking the abdominal aorta, one would be rather reluctant in making a positive diagnosis of

\*Read before the Union County Medical Society, Arkansas.

such. Then, too, the tumor mass being so distant from the aorta makes one uncertain due to the enormousness of the thing. The possibility of an aneurysm attacking the splenic artery was suggested, but dismissed due to the absence of knowledge of such a case having been previously reported. A differential diagnosis seems to eliminate all the possibilities with exception of an abdominal aortic aneurysm. A tentative diagnosis was thus made, however, with some reservation.

#### POST-MORTEM

For the purpose of securing correct diagnosis, permission was granted for performance of a post-mortem examination. For sake of brevity an excerpt is herewith given relative to the pathological findings: A mid-line incision extending from epigastrium to the mons pubis was made. No frte blood; no evidence of internal hemorrhage; left kidney rests upon a mass, easily palpated, about the size of a large orange. The tumor, a sacculated aneurysm was found, on a level with third and fourth lumbar vertebrae. The tumor was almost completely filled with superimposed layers of organized clot; this clot was extremely friable and crumbled between the fingers. Dilated aortic wall apparently did not surround the tumor and obviously, through constant growth of the mass, it ruptured and edges retracted. The possibility of such a ruptured wall seems doubtful for it seems improbable that the force of the cardiac contraction could be sustained by such a thing as an organized clot of blood.

I am of the opinion that the aorta was ruptured at the time the aneurysm was dislodged. There was no evidence of either past or present intra-abdominal hemorrhage.

#### AFTERMATH OF A CASE REPORTED.

By H. C. GRANT, M. D., Staunton, Va.

Some time ago I reported to the Medical Society of Virginia, a case in which the patient was shot in the bridge of the nose with a twenty-two rifle, from ambush. He was 45 years of age and in apparently good health. Twelve days after being shot he developed tetanus, with typical convulsions and opisthotonos. After treatment with the anti-tetanic serum, he finally got better. On the twenty-fourth day after the injury he had a hemorrhage and spit up about two ounces of bright red blood. Upon examination of the nose and

pharynx no bleeding could be detected from that source. He had no further bleeding. I saw him six months after the injury and he seemed to be in his usual health.

At the time I reported the case to the Society I asked for suggestions as to where the hemorrhage came from and no one made any suggestions. This may have been on account of the lunch hour being near and everyone had a distaste for prolonging the program!

The interesting part of this case, at least to me, is that two years later this man died from gastric carcinoma. The hemorrhage was probably from a gastric ulcer and had nothing to do with the injury but was accidentally associated with it.

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## Woman's Auxiliary, to the Medical Society of Va.

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#### Annual Report—1928-29.

The Woman's Auxiliary to the Norfolk County Medical Society submits the following report:

One hundred and twenty enrolled, forty-five of which we count active.

Four executive and four regular meetings held during the year, these taking place in the same building and at the same hour of the Medical Society meeting, thus contributing, we believe, to a better attendance at both.

The following eight (8) committees have functioned most satisfactorily through the year: Health Education; Hygeia; Entertainment; Publicity; Membership; Sick and Visitation; Music, and Motor Corp. The principal work sponsored by the Woman's Auxiliary has been to endeavor to secure in the city a hospital for tubercular patients and to this end our energies have been bent with the result of a definite assurance that the plan has been confirmed and will soon materialize. An outstanding bit of work has been done this year by the Visitation Committee, cementing many new friendships for the Auxiliary by their many acts of friendly solicitude for sick members and those in trouble—caring every month in both a pleasant and practical way for an unfortunate doctor's widow and sending Christmas cheer to another doctor's family in need, both of friendliness and financial aid.

The Constitution and By-Laws were revised



during the year and a President-Elect secured that we might conform to both State and National requirements. At our request, the President of the Medical Society appointed three doctors from their body to serve as an advisory committee to the Auxiliary.

The Chairman of Hygeia has sent in seventy-four subscriptions.

The nicest social event of the year was a reception to all the members given by the Executive Board at the home of the President.

Last, but far from least, of the things accomplished, there has been at each of the four meetings an educational and inspirational talk from the heads of the finest philanthropic organizations of the city in an effort to show the wives of doctors how and where they can best serve the community in which they live. The response has been gratifying.

The following are the new officers for 1929-30-31: President, Mrs. W. P. McDowell; 1st Vice-President, Mrs. R. A. Burges; 2nd Vice-President, Mrs. Lewis Berlin; 3rd Vice-President, Mrs. Arthur Porter; Recording Secretary, Mrs. Rufus Knight; Assistant Recording Secretary, Mrs. Foy Vann; Corresponding Secretary Mrs. Lockburn Scott; Assistant Corresponding Secretary, Mrs. Edward Starke; Treasurer, Mrs. Julian Rawls; and Assistant Treasurer, Mrs. George Renn.

We hope they may find in their work the same pleasure and inspiration that the past two years' work has given me.

Respectfully submitted,

MELISSA PAYNE KING, *Retiring President.*  
(Mrs. M. N. King)

## The Truth About Medicine

### PROPAGANDA FOR REFORM

**Chemical Examination of Salyrgan.**—G. W. Collins reports work carried out in the A. M. A. Chemical Laboratory for the Council on Pharmacy and Chemistry on Salyrgan. He reports that in various journals, periodicals and textbooks a structural formula is given for the compound which differs from that used by the distributor of the product. The theoretical percentage of mercury of neither formula agreed with that given by the manufacturer. The examination disclosed that the formula used in the German literature was incorrect and that that of the manufacturer is correct. The product was found to be a definite chemical compound and of good purity. On the basis of the examination, tests and standards were drawn up: these were agreed to by the manufacturer and are used in the New and Non-official Remedies description adopted by the Council on Pharmacy and Chemistry. (Jour. A. M. A., December 22, 1928, p. 1994).

**Hair-A-Gain.**—This is an alleged enhancer of beauty, sheen, luster, color, texture, contour and abundance of the scalp and hair. Georgia O. George, of Los Angeles, claims to be the inventor, originator and sole manufacturer of this preparation and of mask O'Uth Liquid Mask and Scientific Systemethod. "Hair-A-Gain" is advertised in newspapers and by radio broadcasting stations WMCA, New York; WHK, Cleveland; WEBH, Chicago; KMOX, St. Louis; KFXF, Denver, and various stations on the Pacific Coast. The A. M. A. Chemical Laboratory reports that Hair-A-Gain Liquid Shampoo is marketed in bottles containing about 240 c.c. of a yellow, turbid, viscous liquid, possessing a faint odor suggestive of tar and a marked insoluble residue. From its examination the Laboratory concludes that the preparation is essentially a water solution of ordinary soap. Probably it is the tar, or tarlike substance, that is incorporated in the Hair-A-Gain Paste that has been responsible for such unpleasant effects as have been reported from its use. (Jour. A. M. A., December 22, 1928, p. 2012).

**Boullion Cubes.**—These do not contain a great deal of nourishment. A four ounce (120 c.c.) portion of liquid boullion contains approximately 2.5 Gm. of protein, and no fat or carbohydrate, and has a fuel value of 13 calories. The only relation of boullion cubes to food lies in their stimulating effect on the gastric juices. (Jour. A. M. A., December 22, 1928, p. 2015).

**Anatoxin and Diphtheria Toxoid.**—Anatoxin is diphtheria toxin so modified by the addition of formaldehyde and the application of heat that the toxic properties are greatly reduced while the antigenic properties are retained. The product is prepared and recommended for use in diphtheria prophylaxis by Ramon, of the Pasteur Institute, Paris, France. American manufacturers supply a product, diphtheria toxoid, which is prepared by the addition of formaldehyde to diphtheria toxin and the application of heat. This material is tested for antigenic efficiency by a guinea-pig protection test. It is essentially the same as anatoxin except for the method of testing for potency. The diphtheria toxoid of the H. K. Mulford Co. and E. R. Squibb & Sons has been accepted for New and Non-official Remedies. (Jour. A. M. A., December 22, 1928, p. 2016).

**The Nature of Pepsin.**—Most of the efforts to "purify" enzymes have resulted in the separation of products bearing the characteristics of proteins. This has been conspicuously true of the amylolytic group. It appears that the higher the degree of purification of the amylases, the more nearly do they approach the proteins in composition and properties. Not long ago it was shown that pepsin of high proteolytic power can be obtained by isoelectric precipitation. At pH 2.5, products showing a proteolytic potency of 1:65,000 were secured. The analyses of these products are characteristic of a protein. All fractions still possess proteolytic properties until they reach the stage when they are sufficiently small to diffuse through parchment or animal membranes. The gradual decrease of proteolytic activity of the enzyme itself is paralleled by loss of its complex protein characteristics. (Jour. A. M. A., December 29, 1928, p. 2069).

**Cod Liver Oil.**—The discovery of at least two specifically potent food factors, Vitamins A and D, in cod liver oil within comparatively recent years has completely altered the attitude of scientific investigators, and laymen as well, toward this product that long had a place in dietotherapy on the basis of essentially empirically founded impressions. It is true that cod liver oil functions as a readily digested

and utilized fat and thus as a source of energy; yet an ounce yields little more than 250 calories. So far as present knowledge is concerned, the vitamin content of cod liver oil constitutes its chief claim for consideration in treatment. (Jour. A. M. A., December 29, 1928, p. 2080).

National Radium Emanator and Saubermann Radium Emanation Activator Omitted from N. N. R.—The National Radium Emanator, marketed by the National Radium Products Co., and the Saubermann Radium Emanation Activator, marketed by Radium Limited, are appliances for impregnating drinking water with radon (radium emanation) in dosages ranging from 50,000 to 200,000 mache units in the case of the former, and 10,000 to 100,000 mache units in the case of the latter. The acceptance of both these products expiring with the close of 1928, the firms were asked to submit evidence in favor of their continued inclusion in New and Nonofficial Remedies. The National Radium Products Co. submitted an advertising circular which was in effect an indirect advertisement to the public and which made claims far in excess of those previously permitted by the Council. Radium Limited failed to respond to requests for the current advertising. In consideration of the claims made for the first apparatus and of the failure of the second firm to submit the present advertising, and because no further acceptable evidence has become available, the Council on Pharmacy and Chemistry voted to omit these products from New and Nonofficial Remedies and not to accept further apparatus for the activation of drinking water until convincing evidence for the therapeutic value of the internal use of radon becomes available. (Jour. A. M. A., April 6, 1929, p. 1181.)

Oral Administration of Typhoid Vaccine.—Recently two investigators have observed the effect of oral administration of typhoid vaccine on antibody formation. Using the triple vaccine they found that 88.5 per cent of their subjects developed agglutinins for typhoid and a lesser number for paratyphoid bacilli. This is compared to 80 per cent who, according to the literature, developed agglutinins after subcutaneous inoculation and to 90 to 95 per cent who show a positive Widal reaction after suffering from the disease. The administration of bile before the vaccine increased the percentage and shortened somewhat the latent period in which agglutinins are developed. This interval, the investigators find, is no longer when the oral method is used than it is for the more orthodox method. Complement fixations and precipitins were tested in a smaller number of persons and were found to be present more frequently than in the case of subcutaneous inoculation. These results show a closer similarity in antibody formation to the immunity reaction of typhoid on the part of oral than of subcutaneous administration. However, clinical resistance to disease may not correspond accurately with the development of agglutinins or precipitins. A method so well proved as subcutaneous inoculation against typhoid will not be lightly abandoned. (Jour. A. M. A., April 6, 1929, p. 1185.)

Action of Morphine on the Alimentary Tract.—A better understanding of the action of morphine on different parts of the alimentary canal was obtained by animal experiments which showed that the most constant and lasting effect of morphine on gastric motor in the muscular tone of the stomach wall which outlasts the decrease activity is a decrease in amplitude and frequency of peristaltic waves. Diacetylmorphine, codeine, papaverine and narcotine produce similar effects. In the colon the pronounced effect is a marked increase in tone, accompanied by

more continuous peristaltic activity. On the basis of these experiments the constipating action of opium may be ascribed to the following: Relaxation of the stomach wall and decrease in peristalsis of the pyloric antrum decrease the rate of discharge of gastric contents into the duodenum. Consequently the stomach contents are distributed in small quantities throughout the small intestine, and this would lead to more complete digestion and absorption. The increase in tone and peristaltic activity of the small intestine would produce more even distribution of the content and further increase absorption. In the colon, the marked increase in tone, serves to hold back the material from the sigmoid and rectum, facilitates absorption, and renders the residue drier. These factors seem to explain the constipating action of opium. The antidiarrheic action of the opium alkaloids, may be explained by the increase in tone of the small and large intestine. The increase in tone of the musculature of both the small and the large intestine, following the administration of the opium alkaloids, will cause more even distribution of the content and lessen the tendency to distension, thus removing one factor in the production of pain. (Jour. A. M. A., April 13, 1929, p. 1269.)

Hypervitaminosis.—From data relating to the therapeutic potency of irradiated ergosterol in protecting experimental animals against rickets on an otherwise rachitic diet, it has been estimated that one part in many millions of food suffices to secure the prophylactic purpose. In human infants a daily dosage of considerably less than 4 mg. (6/100 grain) has already been demonstrated to be curative in cases of unmistakable rickets; and there is little doubt that this quantity may be considerably larger than the minimal protective dose. It should not be surprising if larger quantities of such potent substances would exert a pronounced effect on the organism, in directions that may not always be merely beneficial. There have been reports of experiments indicating the possibility of inducing hypercalcemia through use of large doses of irradiated ergosterol. There is no longer any doubt that harm may result from extremely excessive doses of irradiated ergosterol in rachitic animals. The hypervitaminosis to which reference has been made in experiments has involved the use of truly enormous doses. There are no evidences of harm, but many indications of striking benefit, from the customary intake of fat soluble or other vitamins. Toxic effects at such enormous dosages should not in any way discourage the rational use of the properly standardized materials. For the benefit of those who wish to be on their guard for evidences of effects beyond the desired benefit, it may be stated that hypercalcification (eburnation), abnormally high blood pressure and hypercalcemia need to be borne in mind. (Jour. A. M. A., April 13, 1929, p. 1270.)

Ergosterol and Cathode Rays.—It has been shown that the high voltage cathode rays developed by Coolidge also may transfer antirachitic potency to ergosterol and substances containing it. The experiments showed that this sterol exposed to cathode rays is not rendered as potent as when subjected to ultraviolet irradiation from a mercury vapor quartz lamp. These experiments indicate that the antirachitic properties produced by cathode rays are not due to exposure to ultraviolet radiation produced by the rays themselves. (Jour. A. M. A., March 9, 1929, p. 810).

The Ninhydrin Test in Pregnancy.—The Abderhalden Ninhydrin test for pregnancy has fallen into disrepute. There is no evidence that a specific ferment exists in pregnancy. While tests on serum



from pregnant women are uniformly positive, the large number of positive results on the serum of men and nonpregnant women proved the test of no value for the diagnosis of pregnancy. (Jour. A. M. A., March 9, 1929, p. 829).

**Vaccines for Prevention of Meningitis.**—The use of vaccines for the prevention of epidemic meningitis has not been extensive enough to establish any definite general medical opinion in regard to its value. (Jour. A. M. A., March 23, 1929, p. 1008).

**Ephedrine Hydrochloride**—Pitman-Moore Co.—None of the ephedrine products of Pitman-Moore Co. have been accepted by the Council on Pharmacy and Chemistry. The statement given in the advertising of the Pitman-Moore Co. that the ephedrine hydrochloride was the first to be accepted by the Council on Pharmacy and Chemistry is in itself true; but the inference that the *Pitman-Moore Co. brand* of ephedrine hydrochloride has been accepted by the Council is unfair. As ephedrine is susceptible to unusual reactions, physicians will do well to confine their prescriptions to brands of ephedrine which have been admitted to New and Nonofficial Remedies. (Jour. A. M. A., March 23, 1929, p. 1009).

## Book Announcements

**The History of Hemostasis.** By SAMUEL CLARK HARVEY, M. D., Professor of Surgery, Yale University; Surgeon in Chief, New Haven Hospital. Paul B. Hoeber, Inc. New York. 1929. 128 pages, with 19 illustrations. Cloth. Price \$1.50 net.

**The Physiology of Love.** By GEORGE M. KAT-SAINOS, Ph. D., M. D. Privately printed at Boston, Massachusetts. 1929. 326 pages. Cloth. Price \$4.00.

**The Conquest of Cancer.** By DANIEL THOMAS QUIGLEY, M. D., F. A. C. S., Instructor in Surgery in the University of Nebraska College of Medicine; Director of the Radium Hospital of Omaha. Philadelphia. F. A. Davis Company, Publishers. 1929. 539 pages, illustrated with 334 engravings. Cloth. Price, \$6.00 net.

**Diseases and Deformities of the Spine and Thorax.** By ARTHUR STEINDLER, M. D., F. A. C. S., Professor and Head of the Department of Orthopedic Surgery of Iowa State University Medical School, Iowa City, Iowa. St. Louis. The C. V. Mosby Company. 1929. 573 pages, with 76 plates. Cloth. Price, \$12.50.

**Diseases of the Thyroid Gland.** By ARTHUR E. HERTZLER, M. D., Surgeon to the Halstead Hospital, with a chapter on **Hospital Management of Goitre Patients.** By VICTOR E. CHESKY, M. D., Associate Surgeon to Halstead Hospital. Second Edition, Entirely Rewritten. St. Louis. The C. V. Mosby Company. 1929. 286 pages. Illustrated. Cloth. Price \$7.50.

**History of Blockley: A History of the Philadelphia General Hospital From Its Inception, 1731-1928.** Compiled by JOHN WELSH CROSKEY, M. D., Philadelphia. Philadelphia. F. A. Davis Company, Publishers. 1929. 765 pages, illustrated with 15 half-tone plates. Cloth.

**Chippewa Customs.** By FRANCES DENSMORE. Smithsonian Institution, Bureau of American Ethnology, Bulletin 86. United States Government

Printing Office. Washington. 1929. 204 pages. Illustrated. Cloth.

**Forty-third Annual Report of the Bureau of American Ethnology.** To the Secretary of the Smithsonian Institution. 1925-1926. United States Government Printing Office. Washington. 1928. 828 pages. Illustrated. Cloth.

**Diagnostic Methods in Internal Medicine.** By SAMUEL A. LOEWENBERG, M. D., F. A. C. P., Assistant Professor of Clinical Medicine, Jefferson Medical College; formerly Assistant Professor of Physical Diagnosis at the Medico-Chirurgical College and the University of Pennsylvania, Philadelphia. Philadelphia. F. A. Davis Company, Publishers. 1929. Octavo of 1,032 pages, with 547 illustrations, some in colors. Cloth. Price, \$10.00 net.

**New and Nonofficial Remedies, 1929,** containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1929. Cloth. Price, postpaid, \$1.50. pp. 488; xlviii. Chicago: American Medical Association.

This book offers a solution to the problem of the busy physician who is daily importuned by "detail" men to try the thousand and one new preparations brought out by enterprising manufacturers of pharmaceuticals. If the preparation in question is not described in New and Nonofficial Remedies, it is quite safe to refuse to try it no matter how alluring the salesman's talk. The book contains descriptions of those new preparations which, after painstaking examination, the Council on Pharmacy and Chemistry has found worthy of recognition and of trial by the medical profession. It is revised each year to bring it up to date with the best medical thought and to include the new preparations that have been recognized during the year as well as to delete those which have been found not to live up to their promise of therapeutic value.

A new departure in this edition is a list of "ex-empted" articles. This comprises some hundred and thirty medicinal and non-medicinal products examined by the Council and found to be of such composition and to be so marketed as not to require acceptance or rejection by the Council under its rules.

**Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1928.** Cloth. Price, postpaid, \$1.00. pp. 75. Chicago: American Medical Association, 1929.

This book is a great deal more than a mere record of the negative actions of the Council on Pharmacy and Chemistry. It gives in full the reasons for the Council's rejection of various preparations, but it also records results of the Council's investigations of new medicinal agents not yet out of the experimental stage, and frequently contains reports on general questions concerned with the advance of rational drug therapy. All three categories of reports are represented in the present volume.

**International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Surgery, etc.** By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, M. D., and Collaborators. Volume II, Thirty-ninth Series, 1929. Philadelphia and London. J. B. Lippincott Company. 1929. 305 pages. Cloth.

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## Editorial

### Coronary Sclerosis.

Practitioners must have a scientific as well as a practical interest in every work that focuses attention upon and throws light upon pathologic changes in the coronary arteries of the heart. Furthermore, appreciation must be felt of the work of a man who, by careful study of the literature, has arranged references of publications on the subject under consideration, in this way submitting to easy access of the reader new or already known work bearing upon the pathology of vessels supplying the heart with blood. This has been a rather neglected work, as one evaluates its proper place in the category of important disease problems. A popularization of this branch of medical inquiry in the medical reading of the practitioner makes for an advancement of a clearer understanding of heart attacks, and sudden death by the heart infarction. Such editorial reference to the coronary circulation of the heart, is to bring this word of appreciation of the publication of MacLean,\* under the title "Sclerosis of the Coronary Arteries of the Heart," and to further draw the attention of our readers, out in the field of daily practice, to an epitome or summary of this worthwhile study of Dr. MacLean's. After much is said about the place of importance in medical consideration of this or that disease, it is not difficult to show that as a cause of death and of human disability and illness, disease of the blood vessels of the heart, particularly the arteries, takes an undisputed and foremost position.

### THE TERM ARTERIOSCLEROSIS

After years of discussion it seems well enough to have a common understanding in the use of the term "arteriosclerosis." While pathologists are capable of making differentiation and classifications in the proliferative disease of arteries, and, also, in degenerative disease of the arteries, the clinician or practitioner as he works on the living subject at the bedside may ordinarily consider any hardening or thickening of the arterial wall to be arteriosclerosis. It is not infrequent that pathologic examination shows the presence of proliferative and degenerative changes present in the same subject.

MacLean in discussing different types of sclerosis, found in the coronary arteries, notes that his series showed that preponderance of change was in the intimal coat over the other coats. This was found to be true except in the small muscular and finest subepicardial branches where the adventitia suffered the greatest change. He observed in his series that there was a chronic nodular or diffuse endarteritis which in its early formation consisted either of a deposition, "layer by layer" of endothelial structures or an increase in the delicate subendothelial connective tissue stroma. The changes in musculo-elastic layers were marked by a splitting into two layers of the internal elastic lamina, being separated by a few longitudinally running muscle fibres, some connective tissue and an occasional "foam cell." This condition was more common in old hearts. Changes in the medial coat consist of an inflammatory reaction, says MacLean, so frequently seen accompanying acute systemic infection. This is a notable observation of interest to practitioners dealing with infections, syphilitic or other pronounced systemic infections. The fibrosis, while originating from adventitia, was more marked on the outer side of the media and appears to progress along the coronaries to the finer ramifications. A thinning and atrophy of the media, was noted by MacLean in his series, beneath the area of nodular endarteritis. No localized hypertrophy of the media was observed and the atrophic changes probably depend upon the reduced nutrition reaching the medial coat because of the thickening of the intimal coat and besides this, suggests MacLean, blood pressure upon the vessel wall favors diminished nutrition. The adventitia suffered inflammatory

\*Annals of Internal Medicine, June, 1929.



changes. Depending on the type and severity of the reaction, involvement of adventitia in large or small branches were noted; probably rheumatic fever and syphilis brought about most frequent inflammatory adventitia changes in the coronary system of the heart. In association, and as a result, nutritional changes in the heart muscle structure results. This clinically may be observed in heart cases following a historic infection of this sort. The promimal portion of the left coronary and its anterior descending branch, which, notes MacLean, are the commonest sites for such a lesion, may "account for the greater preponderance of myocardial fibrosis seen in the septum."

#### TIME OF LIFE AND CORONARY SCLEROSIS

In the study of arteriosclerosis and accepting the general understanding of the definition as before noted, it is necessary to observe that sclerosis, says MacLean, was found in the coronary system at the age of five days; both the right and left coronary arteries showed nodular thickening of the intima. Patients of marked sclerosis who came to autopsy at the ages of fourteen, sixteen, and twenty years were found in this series. These rather rare findings emphasize the need for a clearer understanding of the early and incipient pathologic changes of the coronary that may and do occur in patients suffering from profound systemic infections. The common acceptance of coronary disease has been to assign it to the category of "old age." But so young as twenty-three years this observer noted calcium deposit in the internal elastic lamina of the coronary artery and atheroma was noted, also, at the age of twenty-three years; the finger of emphasis must be pointed at the fifth decade for exhibition of the highest frequency of arterial changes in the coronary circulation of the heart. At fifty years, MacLean's series showed chronic nodular endarteritis to be by far the most common form of lesion of the coronaries. Calcification and atheroma were changes observed in late years.

One cannot leave this important consideration of this subject without noting MacLean's summing up of the paper presented and certain conclusions reached in this study of the ninety-five hearts examined and literature reviewed in preparation of this contribution. He writes:

"1. Coronary sclerosis is the second commonest type of arteriosclerosis which we have

encountered. It cannot be gauged by examination of peripheral arteries alone.

"2. The distribution of sclerotic changes in the coronaries of the heart varies widely according to the portion of this arterial system examined. Intimal changes occur most frequently in the main coronaries, less frequently in the larger branches, and are seldom seen in the fine muscular twigs. Adventitial changes on the other hand are more common in the finer muscular branches.

"3. Coronary sclerosis is usually present in both coronaries. It is more marked, however, in the left coronary than the right.

"4. Nodular endarteritis in the most common lesion affecting the coronary arteries of the heart and it often produces marked obstruction to the lumen. It rarely occurs apart from an aortic sclerosis.

"5. Atheroma and calcification of the intima of the coronaries rarely occur in the smaller branches. This lesion increases with frequency with age and is nearly always secondary to a chronic nodular endarteritis.

"6. Fatty degeneration may occur in any portion of the intima or media. Fatty streaks in the intima are usually found associated with intoxications, acute infections, diseases or metabolic disturbances.

"7. Calcification of the internal elastic lamina when it occurs, may be the only calcified area in the artery.

"8. Acute systemic infections are evidenced in the coronaries of the heart by cellular reactions in the various coats. As a rule these are more marked in the adventitia and intima than in the media.

"9. The most common lesion in the finer muscular branches and epicardial twigs is an increase in the connective tissues about the adventitia.

"10. Fibrosis of the myocardium is probably largely an end-result of coronary disease, especially the fibrosis occurring around the finest vessels which is related to an adventitial type of sclerosis.

"11. The most common site for coronary occlusion is in the commencement of the anterior descending branch of the left coronary. The occlusion is nearly always the result of a process of thrombosis. Nodular endarteritis or atheromatosis changes alone rarely, if ever, produce occlusion.

"12. Occlusion of one coronary, if not too

suddenly produced. results in so-called 'anemic infarcts,' which may heal by fibrosis.

"13. The symptom-complex, angina pectoris, is commonly related to coronary sclerosis."

#### CHRONIC ARTERIAL DISEASE

While one is considering the excellent work of MacLean on sclerosis of the coronary system of the heart, it may be worth while to point out some general considerations on the much wider disease problem to be found in the general term chronic arterial disease.

Chronic disease of the arteries may be briefly stated as found in a gradual thickening of the arterial walls associated in chronic infections, chronic intoxications of alcohol or lead, chronic disease such as Bright's disease and diabetes. The essential lesions in arteriosclerosis are found in the intima, in the subendothelial layer.

Later, proliferative and degenerative changes occur through the several coats. Classification by pathologists according to pathologic changes have been arranged and need not be brought out here. Enough is said in this comment to emphasize that the initial changes are difficult to discover and produce clinical signs rather late in the progress of the arterial disease. But a mind to discover and bring to the front in importance, symptoms of arterial disease in the early stages of its development should make for a better chance and opportunity to abridge the direful accidents and to delay the terminal features that are imposed in after years.

Physicians must not be content to draw conclusions from certain peripheral arteries. Peripheral arteries which may be felt and observed may not at all represent the state of the blood vessel wall in the brain, the heart, the extremities or the abdomen. The hardened peripheral vessels should have, however, a real meaning.

The patients with arterial hypertension, where vessel and tension may be altered, need complete physical and laboratory study and they need such a study at once. In the adequate consideration of these patients who are in the fifth decade it means a much longer tenure of useful life if complete inventory is made and emphatic instructions are laid and, most important of all, day by day living according to an intelligent plan is carried out.

Arterial disease is widespread. It is found

in every mode of life. It brings numerous and lamentable disorders. The prevention of the terminal features and the prolongation of the physical and mental activity of the individual is to be sought by the early discovery of the conditions and by a careful regimen of daily management of the basic diseases or conditions.

## News Notes

### University of Virginia, Department of Medicine Finals

Were held, as usual, in connection with the commencement exercises of all departments of the University, June 9th-11th. Among the graduates, there were fifty-two men and one woman to receive the degree of doctor of medicine. Names of these young doctors, who represent eight states and two foreign countries, are given below with hospital appointments:

UNIVERSITY OF VIRGINIA HOSPITAL, UNIVERSITY, VA.—Drs. Wilbur Allen Barker, Danville; Donald Osborne Hamblin, University; Eugene Swanson, Pulaski; Robert Winfield Crenshaw McClanahan, Roanoke; Chimer Davis Moore, Cambria; Charles Linwood Savage, Portsmouth; William Cowell Stephenson, Jr., Roanoke; John Davis Dabney Ware, Sewanne Tenn.; and Herbert De-Grange Wolfe, Jr., Petersburg.

ST. LUKE'S HOSPITAL, NEW YORK, N. Y.—Drs. James Porter Baker, Jr., Hallsboro; and Jed Hotchkiss Irvine, Charlottesville.

BELLEVUE HOSPITAL, NEW YORK, N. Y.—Drs. John William Bolen, Galax, and Belle Bonner Dale, Tampico, Mexico.

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.—Dr. Thomas Bradley, Washington, D. C.

GARFIELD MEMORIAL HOSPITAL, WASHINGTON, D. C.—Drs. Arthur Parker Butt, Jr., Elkins, W. Va.; Alva Duckett Daughton, East Falls Church; and Bascom Brockenborough Young, Blackstone.

NORTHWOOD CLINIC, BIRMINGHAM, ALA.—Dr. Francis Leroy Byers, Harrisonburg.

VIRGINIA MASON HOSPITAL, SEATTLE, WASH.—Drs. Aubrey Richardson Carter, Dry Fork; Frederick Pilcher, Jr., Petersburg, and Harrison Rawlings Wesson, Lawrenceville.

ROANOKE HOSPITAL, ROANOKE, VA.—Drs. Howe Reese Coleman, Jr., Collierstown, and John Monroe Green, Georgetown, Ga.

NORFOLK PROTESTANT HOSPITAL, NORFOLK, VA.

\*Work done by Donald L. MacLean, M. D., B. S. C., (Med.) Department of Pathology, University of Toronto. (See *Annals of Internal Medicine*, Vol. 2, No. 12.)



—Drs. Carl Conrad Cooley, Phlegar, and Frank Duncan Castenbader, Norfolk.

NAVAL HOSPITAL, PORTSMOUTH, VA.—Dr. John Mallory Clayton Covington, Laurinburg, N. C.

CHESAPEAKE & OHIO HOSPITAL, CLIFTON FORGE, VA.—Dr. Maurice Milton Fliess, Clifton Forge.

BLUE RIDGE SANATORIUM, CHARLOTTESVILLE, VA.—Dr. Arthur Eulying Glover, Charlottesville.

JEFFERSON HOSPITAL, ROANOKE, VA.—Dr. Charles Slicer Groseclose, Ivanhoe.

ST. ELIZABETH'S HOSPITAL, RICHMOND, VA.—Drs. Guy Winston Horsley, Richmond, and Robert Tunstall Pierce, Jr., Newport News.

GRASSLANDS HOSPITAL, VALHALLA, N. Y.—Dr. William Childs Hutcheson, Boynton.

CHARLESTON GENERAL HOSPITAL, CHARLESTON, W. VA.—Dr. Troy Howell Hutchinson, Wise.

MORRISANIA GENERAL HOSPITAL, NEW YORK, N. Y.—Dr. Charles Kavovit, New York, N. Y.

ORANGE MEMORIAL HOSPITAL, ORANGE, N. J.—Dr. Thomas Cyprian Lawford, Lynchburg.

SINAI HOSPITAL, BALTIMORE, MD.—Drs. Maurice Leon LeBauer, Greensboro, N. C.; Sidney Ferring LeBauer, Greensboro, N. C., and Hyman Blacker Weinberg, Petersburg.

ROPER HOSPITAL, CHARLESTON, S. C.—Dr. Meyer Harry Legum, Norfolk.

LINCOLN HOSPITAL, NEW YORK, N. Y.—Dr. Henry Wallace Litvack, Brooklyn, N. Y.

NEW YORK POST GRADUATE HOSPITAL, NEW YORK, N. Y.—Drs. Robert Bonser Lobban, Alderson, W. Va., and Joseph McBride Sloan, Huntington, W. Va.

ST. MARY'S HOSPITAL, BROOKLYN, N. Y.—Dr. Jules Robert London, Brooklyn, N. Y.

MEDICAL COLLEGE OF VIRGINIA HOSPITAL, RICHMOND, VA.—Dr. Paul Rutherford MacFadyen, Jr., Rutherford, N. C.

SANTO TOMAS HOSPITAL, PANAMA — Dr. Alberto Navarro, Panama, R. P.

KINGS COUNTY HOSPITAL, BROOKLYN, N. Y.—Dr. Paul Otto, University.

JAMAICA HOSPITAL — Dr. Minor Bransford Payne, Clifford.

WALTER REED GENERAL HOSPITAL, WASHINGTON, D. C.—Dr. Robert Edwin Peyton, Barboursville.

CHURCH HOME & INFIRMARY, BALTIMORE, MD.—Dr. John Alsop Pilcher, Jr., Roanoke.

GERMANTOWN HOSPITAL, PHILADELPHIA, PA.—Dr. Christopher Madison Turman, Jr., Arcola.

NORWOOD HOSPITAL, BIRMINGHAM, ALA.—Dr. William Lewis Willis, Birmingham, Ala.

Other members of the graduating class in medicine are:

Dr. Tarring Whitfield Heironimus, Jr., Grafton, W. Va.

Dr. John Howard Greene, Clintwood, Va.

### Our Charlottesville Meeting.

Plans are progressing steadily for a most interesting meeting of the Medical Society of Virginia in Charlottesville, October 22nd, 23rd and 24th. This is the first time our Society has met in that city since 1906, and this will be a most opportune occasion for those who have not visited that place in some time to see the great improvements which have been wrought there and at the University of Virginia. Be sure to include the above named dates as a part of your vacation and bring the ladies in your family with you.

Doctors' wives and daughters will be interested in knowing that Mrs. H. B. Mulholland has been appointed chairman of the Ladies' Committee on entertainment. The following doctors' wives will serve on her committee: Mesdames H. L. Baptist, A. F. Voshell, R. L. Page, F. B. Stafford, M. L. Rea, W. D. Macon, F. D. Woodward, J. C. Flippin, J. H. Neff, and E. P. Lehman.

This year, the Program Committee has departed from the old idea of having a symposium and decided to have two special papers in place of this—one on "Recent Progress in Internal Medicine" and the other on "Recent Progress in General Surgery." Dr. H. B. Mulholland, of the Medical Department of the University of Virginia, and Dr. G. P. LaRoque, of the Surgical Department of the Medical College of Virginia, have accepted the invitations of the Committee to present the above papers, respectively. A number of other interesting papers will appear on the program.

### The Norfolk County Medical Society,

At its annual meeting on the evening of July the 3rd, elected the following officers for the coming year: President, Dr. C. Lydon Harrell; vice-president, Dr. Franklin D. Wilson; secretary-treasurer, Dr. Lockburn B. Scott (re-elected). All of these officers are of Norfolk, Va.

At this meeting, delegates were elected to

the Charlottesville meeting of the State Society. Their names will appear in the list of delegates in a later issue of the MONTHLY.

#### **The Southside Virginia Medical Association**

Met at LaCrosse, Va., June the 11th, with over fifty members in attendance. An unusually attractive program made the meeting most interesting to those present. An especially attractive feature of this meeting was the exhibition by Dr. W. W. Wilkinson, of LaCrosse, of some cases of pellagra. Another feature enjoyed by all was the barbecue and brunswick stew dinner served the visitors in the beautiful grove back of the High School by the doctors of LaCrosse and South Hill—Drs. W. W. Wilkinson, C. V. Montgomery, and W. L. Varn. Dr. R. H. Manson, McKenney, president, presided at this meeting and Dr. R. L. Raiford, Franklin, was in his usual place as secretary.

#### **Married.**

Dr. Jack Smiley, Salem Va., and Miss Mary Frances Duke, April the 19th in Washington, D. C.

Dr. Emerson Macaulay Babb, Ivor, Va., and Miss Virginia Bell Smith, Franklin, Va., June 25th.

Dr. Chapman Hunter Binford, Pamplin, Va., of the class of '29, Medical College of Virginia, and Miss Thelma Lynette Beauchamp, Rainswood, Va., June 8th.

Dr. Charles Lewis Baird, Dillwyn, Va., and Miss Mary Virginia Smith, Richmond, June 25th. Dr. Baird is also a 1929 graduate from the Medical College of Virginia.

The marriage has just been announced of Dr. Paul Rutherford MacFadyen, Jr., of Rutherford N. C., and Miss Martha Elizabeth Goodwin, of Louisa, Va., at Rockville, Md., August 3, 1928.

Dr. Francis Bailey Teague, Roanoke, Va., and Miss Doris Evalene Ferrell, Lynchburg, Va., June 8th.

Dr. Oswald Fenton Hedley, of the class of '28, Medical College of Virginia, and Miss Charlotte Marie Best, Round Hill, Va., June 26th. Dr. Hedley is now stationed at the Quarantine Hospital, New Orleans, La.

Dr. Homer Browning Luttrell, Bramwell, W. Va., an alumnus of the Medical College of Virginia, and Miss Virginia Painter, of Pulaski, Va., July 6th.

Dr. Charles Hawes Evans, of the class of '25, University of Virginia, Department of

Medicine, and Miss Eleanor Goodwin Brown, of New York, June 8th. Dr. Evans interned in New York City and later took post-graduate work. He will now be located at 136 Harrison Street, East Orange, N. J.

#### **Dr. Joseph A. White,**

Richmond, Va., was awarded the honorary degree of doctor of laws at the commencement exercises of Mount St. Mary's College, Emmitsburg, Md., June the 11th. Dr. White is an alumnus of this college and has been for many years a prominent and beloved eye, ear, nose and throat specialist in Richmond, and is considered a foremost specialist throughout this country.

#### **Dr. George S. Silliman,**

Formerly roentgenologist at the George Ben Johnston Memorial Clinic, Abingdon, Va., has recently gone to Gary, Ind., where he has accepted the position as roentgenologist and pathologist at the Methodist Hospital in that place.

#### **New Professors at University of Virginia, Department of Medicine.**

Dr. Kenneth F. Maxcy, assistant surgeon of the U. S. Public Health Service, has been elected professor of public health and hygiene at the University of Virginia, to fill the new chair just established there. The establishment of this chair was made possible by a gift from the General Education Board to the Medical Department. Dr. Maxcy is an alumnus of Johns Hopkins University, School of Medicine. After the World War, he returned to Johns Hopkins, and received his degree as doctor of public health in 1921.

Dr. David C. Wilson, recently of Clifton Springs Sanitarium, New York, has been elected associate professor of psychiatry and neurology. He is a member of the class of '19, University of Virginia, Department of Medicine.

Both Drs. Maxcy and Wilson will join the medical staff with the opening of the next session in September.

#### **The Medical Society of the District of Columbia.**

At the meeting of this Society on May 29th, Dr. Harry Hyland Kerr delivered his Presidential address. The meeting was attended by members of the Society and of the Woman's Auxiliary. The following officers were elected to serve from July 1, 1929, to June 30, 1930: President, Dr. John A. Foote; Vice-Presi-



dents, Drs. William J. Mallory and Kate B. Karpeles; Secretary-Treasurer, Dr. Coursen B. Conklin (re-elected); Delegate to the A. M. A., Dr. Henry C. Macatee, with Dr. Frank Leech as Alternate; Executive Committee, Drs. Harry H. Kerr, R. Arthur Hooe and Wm. H. Hough.

Drs. Leslie T. Gager and E. Clarence Rice were elected as Chairman and Secretary-Treasurer, respectively, of the Section on Internal Medicine; and Drs. Louis S. Greene and Edward R. Gookin as Chairman and Secretary, respectively, of the Section on Ophthalmology and Oto-Laryngology.

#### **Dr. Stuart McGuire,**

Richmond, Va., was recently elected chairman of the executive committee of the Board of Visitors of the Medical College of Virginia, succeeding Mr. Thomas L. Moore, deceased.

#### **Elementary Training for Doctors' Helpers.**

The University of Virginia will hold its fifth Institute for Doctors' Helpers in Washington Hall, for the five days, August 5th to 9th, inclusive. This Institute, as well as one to be given for colored women at the Virginia Normal and Industrial School at Petersburg from August 12th to August 16th, inclusive, is to be conducted by trained lecturers from the State Department of Health.

The purpose of the course is to teach women such elementary principles of nursing as may qualify them to act as bedside helpers when trained nurses are neither available nor absolutely necessary. The courses are designed so they may be particularly helpful in training women to act in confinement cases.

There are many hundreds of women in Virginia who have some leisure that might profitably be occupied in helpful ways. It is certain that these Institutes show one way to occupy spare time; and it is hoped that some of the women trained at these Institutes may eventually be so impressed with the possibilities of the work that they may go far toward supplanting the ignorant midwives upon whom so many of the rural women have to depend at childbirth.

#### **Dr. S. G. Miller,**

Recently of Bacova, Va., has moved to Huntington, W. Va., where he is connected with the Chesapeake and Ohio Hospital.

#### **New York's New Child-Marriage Law**

At last, after a five years' legislative campaign, New York State has adopted a new

child-marriage law, which requires the consent of a judge of a children's court as well as that of the parents before marriage licenses may be issued for girls under sixteen years of age.

#### **The John Horsley Memorial Prize for 1929**

Has been awarded to Dr. Bayard T. Horton, of Rochester, Minn., for a thesis entitled "A Study of the Pyloric Block with Special Reference to Musculature, Myenteric Plexus and Lymphatics."

This prize given by Dr. J. Shelton Horsley, of Richmond, Va., is awarded biennially by a Committee of the University of Virginia Faculty to medical graduates of the University of Virginia of not more than fifteen years' standing for a thesis representing original work on some subject in the field of surgery. It consists of the income for the two-year period from a gift of \$10,000, and is therefore in the neighborhood of \$1,000.

The theses in competition for the award of 1931 must be in the hands of the Chairman of the Committee, Dr. Edwin P. Lehman, University, Va., by February 1, 1931.

#### **A Few Summer Vacationists.**

Dr. and Mrs. N. Thos. Ennett, Richmond, are leaving early this month for a vacation of several weeks in Europe.

Dr. George A. Wright, superintendent of the Southwestern Virginia State Hospital, Marion, Va., left the latter part of June for a visit to Baltimore and a trip to western states.

Dr. and Mrs. J. F. McClellan and children have returned to their home at Kenbridge, after a visit of several weeks to relatives in Florida.

Dr. R. H. Fuller has returned to his home in South Boston, after a visit of several weeks at the Mayo Clinic, Rochester, Minn.

Dr. Nelson Mercer, Richmond, is home again after a motor trip to Wilkes-Barre, Pa., his mother having gone with him.

Dr. C. E. C. Peyton, Pulaski, Va., was recently in Richmond, having come here for a visit to his daughter, Mrs. R. C. Fravel.

Dr. Elizabeth Edmunds has returned to her home in Richmond, after a visit to her parents at her former home in Halifax, Va.

Dr. St. Julien Oppenheimer, of Richmond, is home again after a fishing trip with a party of friends at Wachapreague, Va.

Dr. and Mrs. Albert E. Wilson, Norfolk, Va., recently enjoyed a vacation motoring

through the Valley of Virginia. They also went through Goshen Pass during the rhododendron and mountain laurel season.

Dr. J. L. Hamner, Mannboro, Va., has been visiting friends in West Virginia.

Dr. P. E. Tucker has just returned to his home at Buckingham C. H., Va., after several months of special studying in New York City.

Dr. and Mrs. J. Reginald Bailey, Keysville, Va., with a party of friends, have been on a camping trip at Burwell's Bay.

Dr. and Mrs. Hunter McGuire, Richmond, with several friends, have been spending some time at Virginia Beach.

Dr. and Mrs. Howard Urbach, Richmond, left the first of July for Camp Virginia, near Goshen Pass, Va., where they will spend some time.

#### **The Samuel D. Gross Prize.**

The trustees for this prize, Drs. William J. Taylor, John H. Jopson, and Edward B. Hodge, announce that essays will be received in competition for the prize of fifteen hundred dollars until January 1, 1930.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. 22d St., Philadelphia," on or before January 1, 1930.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer.

No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

#### **Dr. Lawrence T. Price,**

For several terms a member of the Common Council of Richmond, Va., has tendered his resignation to be effective at the July meeting, owing to the demands of his professional work.

#### **How Far Are Farm Families from Medical Help?**

Seven miles from the nearest doctor and eighteen miles from the nearest hospital was the average distance for the 860 farm women who answered a questionnaire sent out last December by The Farmers' Wife. These women came from every State in the Union. The actual distances for the families represented varied from a few village blocks to seventy-five miles, not infrequently over bad roads and narrow mountain trails.

#### **Virginia Children Show Improvement.**

When, four years ago, the State departments of health and education adopted a five point standard of physical fitness for school children, the percentage of physically fit was comparatively low. The first annual examination gave a record of approximately 7 per cent.

During the following year, considerable attention was given to the correction of remediable defects, and parents generally began taking greater interest in the work. The teachers were reporting far better progress among the physically fit children as compared with the under-normal ones. This gave an added incentive, and the outcome was a doubling of the percentage of standard children.

The third annual showing is now being compiled and the first records received by the health department indicate a very gratifying outcome. It is virtually certain that the figures for the State will show this year at least 25 per cent of the school children in good condition so far as their weights, vision, hearing, breathing and teeth are concerned. One county, Warren, reports more than 60 per cent as five-pointers.

The State Health Commissioner feels that it will only be a short time when all Virginia



counties will be making records in this line to compare with Warren.

#### **Dr. K. P. B. Bonner**

Has recently been elected Mayor of Morehead City, N. C. Dr. Bonner is an alumnus of the Medical College of Virginia.

#### **Dr. James W. Keever,**

Formerly resident physician at Pine Camp Hospital, Richmond, Va., has been appointed health officer for Hickory, N. C. Dr. Keever went to Hickory to become city physician and the new appointment will combine those duties with that of the board of health officer. He is a graduate of the Medical College of Virginia in the class of '27.

#### **Reidsville, N. C., to Have Hospital.**

Dr. T. W. Edmunds, Danville, Va., is to be in charge of a hospital to be erected in Reidsville, N. C., work on which will commence this month. We understand, however, that Dr. Edmunds will continue to make his home in Danville. On account of two very substantial gifts which have been made, the hospital will be known as the Annie Penn Memorial Hospital. There will be a nurses' training school operated in connection with the institution.

#### **The Work of the Rockefeller Foundation in 1928.**

During 1928 the Rockefeller Foundation continued its regular program of activities consisting chiefly in (1) promoting the development of medical knowledge by aiding schools of medicine, nursing, and hygiene in many parts of the world; (2) advancing the cause of public health by helping governments fight certain diseases and strengthen their local health services; and (3) carrying out an extensive fellowship program by which 800 men and women were enabled to pursue additional studies, chiefly in countries other than their own. In doing this work the Foundation disbursed from income and capital \$21,690,738, of which \$12,000,000 constituted an endowment fund for the new China Medical Board, Incorporated.

During the year plans were completed for a reorganization embodying as its main features the merging of the Rockefeller Foundation and the Laura Spelman Rockefeller Memorial into a new corporation to be known as the Rockefeller Foundation, and the extension of the scope of the new Foundation's activities to include work in the natural and social sci-

ences and in the humanities. A China Medical Board with independent self-perpetuating trustees to receive the lands and buildings of the Peking Union Medical College together with an endowment fund and annual appropriations was also created.

#### **Two Local Societies Have Entertainments.**

Feeling that social features have a prominent place in the local society life, two societies had entertainments as their closing meetings this year.

The Norfolk County Medical Society had its annual "get together" gathering in the nature of an informal buffet supper at the Norfolk Country Club, on May the 29th. It was a subscription affair for all members and local representatives of the Army, Navy and Public Health Services.

The Roanoke Academy of Medicine had their closing meeting for the summer on June the 14th, in the form of a picnic and Mrs. S. B. Cary and her committee of doctors' wives had arranged an excellent picnic supper. There were various contests and plenty of entertainment, including bathing, and all members were told to bring their wives, or, if unmarried, some friend.

#### **Lt. James F. Terrell, M. C., U. S. Navy,**

Reported early in June for duty as medical officer of the Richmond, Va., recruiting district. Dr. Terrell, who is an alumnus of the Medical College of Virginia, came here from duty on the U. S. S. Hannibal, which vessel had been conducting a survey of waters on the southern coast of Cuba.

#### **Rural Hospital Centers Nearing Completion**

Two of the six rural hospitals planned by the Commonwealth Fund of New York—those in Rutherford County, Tenn., and Farmville, Va.—are already in operation. The others, now being built in rural sections of Kentucky, Maine, Kansas, and Ohio, will be ready for use by November 1st. These hospitals are to be centers for coordinating all health activities in a single integrated plan, including modern institutional care of the sick, improvement in the standards of medical practice and nursing, and development of public health work in the district.

#### **Sedgwick Medal Award.**

The American Public Health Association announces that the first award of the Sedgwick Memorial Medal will be considered in 1929. This award was established in honor of the

late Professor William Thompson Sedgwick, a former President of the American Public Health Association. The fund which provides the medal was raised by popular subscription from Professor Sedgwick's former students and friends. It is to be awarded for distinguished service in public health.

Except for the fact that it is limited to the recognition of service in the field of public health there is no restriction as to the special line of service that will be considered. Administration, research, education, technical service and all other specialties in the public health profession will receive equal consideration. No limitations as to age, sex or residence have been fixed, though only candidates who are nationals of the countries in the American Public Health Association—at present, United States, Canada, Cuba and Mexico—are eligible.

The committee in charge will not consider direct applications from candidates, nor will anonymous recommendations be considered. The committee reserves the right to refrain from making an award this year. Nominations should be addressed to the Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y., who will also supply necessary information for making nominations.

#### **United States Pharmacopoeial Convention.**

Call has been issued for the eleventh convention for the revision of the pharmacopoeia of the United States of America, and, in compliance with the provisions of the Constitution and By-Laws of the Convention, its President, Dr. Reid Hunt, invites the several bodies, entitled under the Constitution to representation therein, to appoint delegates to the Eleventh Decennial Convention to meet in Washington, D. C., on May 13, 1930.

Dr. Lyman F. Kebler, 1322 Park Road, N. W., Washington, D. C., is secretary of the United States Pharmacopoeial Convention of 1930.

#### **Dr. John F. Woodward, Jr.,**

Of Norfolk, Va., who graduated in medicine from the University of Virginia, last year, will begin a three years' internship at the Manhattan Eye, Ear, Nose and Throat Hospital, New York, on October 1st, 1929. For the past year he has been serving an internship at the Cincinnati General Hospital, Cincinnati, O.

#### **The Ennion G. Williams Preventorium for Teachers,**

Dedicatory exercises for this Preventorium for teachers of Virginia were held on June 22nd in the McIntire Amphitheatre at the University of Virginia. The Preventorium takes up an entire floor of the newest wing of the University Hospital and contains beds for twenty patients. It was built with funds provided by the teachers of the State and was named after Dr. Ennion G. Williams, State Health Commissioner, who has done so much for preventive medicine in this State.

Under the contract with the hospital, teachers are to be admitted upon certification by the executive secretary of the Virginia Education Association when they comply with the eligibility qualifications and they are to receive all hospital advantages at a nominal cost. The physicians and surgeons at the hospital will give their services free of charge.

#### **Dr. J. S. DeJarnette,**

Superintendent of the Western State Hospital at Staunton, Va., was the principal speaker before the Petersburg, Va., Kiwanis Club, at their meeting on June the 25th. His talk was on "Sterilization."

#### **Hoffmann-La Roche, Inc.,**

Is the new name under which the former firm of Hoffmann-La Roche Chemical Works is now operating. They have recently moved into their new home at Nutley, N. J., and will be glad to have inquiries about their advertising matter as it appears in the MONTHLY and other journals addressed to their Scientific Department at Nutley. Their advertising policy will remain the same, the only change being a shortening of their name and a new home. We wish them continued success.

#### **Hampden-Sidney Alumni Officers.**

Dr. Wallace Blanton was recently elected president of the Richmond (Va.) Chapter of Hampden-Sidney Alumni for the ensuing year. Dr. Frank S. Johns is the newly elected treasurer of this chapter.

#### **The Gorgas Memorial Institute.**

At a meeting of the Board of Directors held in Washington on April the twenty-second, Dr. Franklin Martin, Chairman of the Board, reviewed his visit to Panama on the occasion of the dedication of the Gorgas Memorial Laboratory of Tropical Medicine. The Board of Directors unanimously approved the action of its chairman in accepting the gift of the Gorgas



Memorial Laboratory and authorized a formal resolution of acceptance and thanks to be sent to the President of the Republic of Panama.

Dr. Cary T. Grayson, President of the Institute, announced the gift to the Memorial of ten thousand copies of the biography of Dr. William Crawford Gorgas written by Dr. Franklin Martin, Chairman of the Board of Directors. This book is a very comprehensive and interesting study of the life of Dr. Gorgas, covering seventy-four pages.

#### **Dr. T. R. Rolston,**

Of the class of '29, Medical College of Virginia, has located at New Hope, Va., for the general practice of medicine. Dr. Rolston's former home was in Staunton, Va.

#### **Dr. L. R. Broome,**

Recently of Charlottesville, Va., announces his removal to Catawba Sanatorium, Va.

#### **Dr. William C. Holt,**

Of the class of '26, University of Virginia, Department of Medicine, after a service at Parkland Hospital, Dallas, Tex., is now associated with Dr. Raworth Williams of that city, in the practice of urology.

#### **Dr. N. B. Jeter,**

After a year's internship at City Memorial Hospital, Winston-Salem, N. C., has located at Colony, Va. Dr. Jeter graduated from the Medical College of Virginia in 1928.

#### **New Superintendent at Memorial Hospital.**

Dr. J. L. McElroy following several months given to visiting medical centers of Europe has become superintendent of the hospitals of the Medical College of Virginia, Richmond. These are the Memorial, the Dooley, and the St. Philip hospitals. The Crippled Children's Hospital is affiliated as the orthopedic department for white children.

Mr. J. R. McCauley, who has been in charge of this work, is now full time secretary-treasurer of the Medical College of Virginia.

#### **Doctors Officers of Council of Social Agencies.**

Dr. Greer Baughman was recently elected president of the Richmond (Va.) Council of Social Agencies; Dr. Garnett Nelson, first vice-president; and Dr. W. Brownley Foster a member of the executive committee.

#### **Dr. Robins Honored.**

When Dr. Charles R. Robins terminated his service as president of the Richmond (Va.) Rotary Club, the latter part of June, he was

presented a set of twelve silver bread and butter plates and four silver candlesticks in token of the love and regard of his fellow Rotarians.

#### **Dr. L. E. Cockrell,**

Reedville, Va., suffered a dislocated shoulder in an auto accident the latter part of June. In swerving suddenly to avoid collision with another car, his sedan skidded, struck an embankment and turned over several times. Other occupants of the car suffered slight injuries, bruises and cuts.

#### **Johnston Willis Hospital Ex-Residents Meet.**

About fifty doctors from Virginia cities and other states attended the annual meeting of ex-residents of the Johnston Willis Hospital, in Richmond, Va., June the 19th. On this occasion, papers were presented by Dr. S. B. Cary, Roanoke, Va., Dr. Wm. B. McCutchen, Durham, N. C., and Dr. Gerald Parker, New York City. The guest of honor and principal speaker was Dr. Edwin P. Lehman, of the University of Virginia. The visitors were entertained at luncheon and supper by the hospital staff. Election of officers for the ensuing year resulted as follows: President, Dr. J. D. Willis, Roanoke, Va.; vice-president, Dr. Clarence Campbell, Sparta, Va., and secretary-treasurer, Dr. Frank Johns (re-elected), Richmond.

#### **Virginia Doctors Go To Military Camps.**

The following Virginia doctors are among the officers who have been ordered by the War Department to Carlisle Barracks, Pa., for active duty for fourteen days, effective July the 7th: Dr. J. N. Barney, Fredericksburg; Drs. G. A. Ezekiel and Wm. R. Weisiger, Richmond; Dr. C. P. Obenschain, Staunton; Dr. G. A. L. Kolmer, Salem; and Dr. H. W. Potter, Newport News.

#### **Dr. Wilbur M. Bowman,**

Petersburg, Va., has been elected master of finance of the Naomi Lodge No. 30, Knights of Pythias of that city.

#### **Virginia Doctor Made Director of American Society for Control of Cancer.**

Dr. J. Shelton Horsley, Richmond, for some years chairman of the Virginia Division of the American Society for the Control of Cancer, has recently been elected a Director of the American Society for the Control of Cancer.

#### **Dr. Joseph L. Miller,**

Thomas, W. Va., recently returned to his home after a western trip, during which time

he delivered several lectures and also visited friends in Omaha, Nebr. He delivered the two Mayo Foundation lectures in medical history given in the Spring of each year and later by invitation also addressed the medical society in Kansas City, Mo., on the subject of the value and interest to a general medical library (such as they have in that city) of a collection of the classics and interesting books in medicine handed down from the past.

#### **Dr. L. L. Williams Ordered to India.**

Dr. L. L. Williams, Jr., of the U. S. Public Health Service, who has for the past six years been detailed to Virginia in charge of malaria control work, has been ordered to India for a period of six months. In that country, he will be engaged in a survey of those sections of the lower country where mosquitoes are most prevalent, and will also make an investigation of other insect pests there.

#### **English Policemen Organize Boys' Clubs.**

In an effort to keep boys out of harmful mischief certain members of the local police forces of three English towns have voluntarily organized and financed boys' clubs. So great has been the success of this plan that a marked decrease in juvenile delinquency has already been reported in these towns.

#### **Notice of Examination for Entrance into the Regular Corps of the United States Public Health Service.**

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C., September 9, 1929.

At Chicago, Ill., September 9, 1929.

At New Orleans La., September 9, 1929.

At San Francisco, Cal., September 9, 1929.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to

the Surgeon General, U. S. Public Health Service, Washington, D. C.

#### **Lincoln School for Nurses.**

Exercises dedicating the new building of the Lincoln School for Nurses in New York City "for the advancement and progress of scientific medicine among the colored race," took place on the 19th of June.

A representative of the board of managers outlined the new policy of training Negro women for executive positions in the public health and nursing fields, which will follow the opening of the new structure. The structure is ten stories in height, and this is the first school building of its kind being fully equipped with the latest scientific devices.

#### **World Conference for Crippled Children.**

A world conference of workers for crippled children, to be attended by public officials, scientific men and social workers, will be held at Geneva, Switzerland, July 28th to August 2nd, according to Edgar F. Allen, of Elyria, O., president of the International Society for Crippled Children.

Every European country which has given thought to helping its crippled children will be represented on the Conference program, and delegates from all parts of North and South America and far eastern countries are expected to attend. Every important phase of the crippled children's problem will be thoroughly discussed by experts from all countries represented.

Further information may be obtained from Mr. Harry H. Howett, Executive Secretary, Elyria, O.

#### **Dr. J. Shelton Horsley,**

Richmond, Va., delivered the oration in surgery before the seventy-ninth annual meeting of the Illinois State Medical Society, at Peoria, Ill., May 22, 1929. The Society had a good meeting, with a large attendance.

#### **The Trudeau Medal,**

Named in honor of Dr. Edward L. Trudeau, the great physician who established at Saranac Lake the first laboratory in this country devoted to the study of tuberculosis, was awarded to Dr. Eugene L. Opie, a native Virginian, at the twenty-fifth annual meeting of the National Tuberculosis Association recently held at Atlantic City. Dr. Opie, who now resides in Philadelphia, is an authority on tuberculosis in childhood.



**Wanted.**

A physician for a rural practice in Northern Virginia, fifty miles from Washington, D. C., in a rich, high, beautiful section with good schools, churches, excellent people and some bad roads. Collections 80 to 95 per cent—excellent territory, with good income. Please give the following information in your first letter:

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**Wanted—**

An intern at the Petersburg Hospital for a period of twelve months. Salary \$75.00 per month and maintenance. Address: Superintendent, Petersburg Hospital, Petersburg, Va. (*Adv.*)

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## Obituary Record

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**Dr. R. Lester Hudgins,**

Farmville, Va., died at a Richmond hospital, July 2nd, after having been in ill health for some months. Dr. Hudgins was fifty years of age and graduated in medicine from the former University College of Medicine, Richmond, in 1906, after which he interned at the Richmond City Home. Several years ago he took up special work in New York. He had been a member of the Medical Society of Virginia since shortly after graduation and was also identified with several other societies. He is survived by his wife and two daughters.

**Dr. George Armistead Noland,**

Ashburn, Va., died suddenly June the 10th, at the age of fifty-one years. He graduated from the College of Physicians and Surgeons, Baltimore, in 1909. Dr. Noland was a member of the Medical Society of Virginia, Phi Beta Pi Medical Fraternity, Masonic Or-

der, the Loudoun County Medical Society, Fellow of the American Medical Association, a life member of the American Medical Association of Vienna, Austria, and also a member of the University Club, Washington, D. C. His wife survives him.

**Dr. Samuel Hayes Conner,**

A graduate from the University of Virginia, Department of Medicine in 1926, died at the Blue Ridge Sanatorium, June 11th. Dr. Conner served as assistant pathologist at the University of Virginia during 1926-27 and became a member of the Blue Ridge Sanatorium staff in 1927. He was transferred to the Piedmont Sanatorium, at Burkeville, and returned to Blue Ridge last year as a patient.

**Achile Murat Willis.**

The following resolutions on the death of Dr. Willis were adopted at a meeting of the Richmond Academy of Medicine held on April 9, 1929:

Measured by the mere number of his days his life was brief. On the tenth of December, 1878, at Ben Lomond, Ala., he was born, and in Richmond, on the third day of January, 1929, his earthly activity was concluded. Yet in that short career of a little more than fifty years was compressed a life by no means brief when measured by the boundless energy which enabled him to render such splendid service in so many fields of usefulness to his fellow-man.

His inheritance, paternal and maternal, was substantial. Although his father, Byrd Charles Willis, was born in Florida, through him descent went back straight to Francis Willis, a pioneer land-holder in York County, Virginia, in 1642. And the blood of the mother, Leila Mann, gave him relationship likewise to many of the oldest families of this ancient Commonwealth. In spite of the birth of Dr. Willis in a far-Southern State, his blood was all Virginian, and spiritually he could not have been at home elsewhere than in the Commonwealth of Virginia, the history of which his own people had been so potent in making luminous. It is not strange, therefore, that in early boyhood he yielded to the yearning to identify himself with the home of his own people. He came to Orange County, and at "Wood Park" his formative years were spent. In the country schools his earliest education was acquired, and his formal academic tutelage was concluded at the Woodberry Forest School. Before entering upon his professional training he came to Richmond and for a brief period engaged in life insurance work.

But even in boyhood he had determined upon a medical career, and in keeping with that ambition he matriculated in the University College of Medicine. After two years, however, he entered an advanced class in the Medical College of Virginia, from which he was graduated a doctor of medicine in 1904. His energy, the alertness of his mind, and his seriousness of purpose attracted the favorable attention of his teachers. He won an appointment as intern in Memorial Hospital, and in that capacity

he came more closely under the observant eye of Dr. George Ben Johnston. As an evidence of the latent possibilities seen in the young intern by that eminent surgeon, Murat Willis was invited into professional association with Dr. Johnston and they organized in Richmond, in 1909, the Johnston-Willis Sanatorium, a private hospital, general in the scope of its work. That association, so fruitful alike to themselves and to the high art of medicine in this locality, lasted until disrupted by the death of Dr. Johnston in 1916. It would be difficult to think of personalities more unlike than the personalities of those two men, but in their joint determination to do surgery of such a quality as to give their hospital high standing and to help in making Richmond a medical center, there was concordant action, and of the degree of success attending their efforts the pages of medical literature speak in approving fashion. The torch of science in passing from the falling hands of Johnston into the highly trained fingers of Willis never for a moment flickered or grew dim. The master had trained well his eager pupil. Out of that association came in later years the organization of the George Ben Johnston Memorial Hospital, at Abingdon, the Park View Hospital, at Rocky Mount, in North Carolina, and still more recently the Community Hospital, at Nassawadox, in Virginia. Through the beneficent activities of these four institutions, so widely separated, the organizing genius and the operating skill of these two masters in the art of healing continue to make hallowed and immortal their professional lives.

In the earliest days of his surgical career Dr. Willis began to teach others even while still teaching himself. For some time prior to his death he had occupied the Chair of Surgery in the Medical College of Virginia. But even before the assumption of the professorial role he had done excellent teaching in the more minor positions. He made no effort to impress his students by the assumption of courtly professorial dignity. His gifts as a teacher were adequate to win the respect and to hold the admiration of his pupils. He was possessed, perhaps without realizing it keenly himself, of genuine didactic gifts. He could impart his knowledge, and he could make his students eager to know what he himself knew. His enthusiasm in his work knew no bounds; he was affable, approachable, inspiring, and in him the medical student always had a sympathetic friend as well as an arousing instructor. Dr. Willis' interest in the career of his students did not end with their graduation; he continued to encourage them to do conscientious work, to attend medical meetings, and to record and to report their experiences. He guided many a young medical man into some specialty and the catholicity of his own interest in all the branches of medicine inspired many a plodding practitioner into unconscious emulation.

But his teaching was not limited to the instruction of undergraduates. He made substantial contributions to a better understanding of appendicitis, diseases of the gall-bladder, upper gastro-intestinal ulcers, and burns. For the past twenty years he had been making genuine additions to surgical literature, and through such a medium he became an instructor to all surgeons.

Dr. Willis retained the innate curiosity of the child. His mind ranged and roamed throughout the universe. But he was probably not philosophically inclined. He was without interest in theories unless they offered practical explanation of problems that concerned him. He did not write essays. He probably engaged little in speculation and rarely

indulged in contemplation. His interest was exceedingly practical, yet the sweep and the depth of his interest were enormous. He could have said with the ancient that whatever was human was of concern to him. He liked folks. He was interested in all types of people. He was concerned about their problems. Much of the store of his boundless information was gathered by him through conversation with all kinds of people about all sorts of matters. He was genial, and kindly, and companionable, and sympathetic, and generous, and charitable. He gave freely, yet quietly and unostentatiously of his substance and of his skill and of himself to mankind. He loved all children, and thorough comradeship arose between him and them whenever they met. His body was sound and his spirit wholesome. He did not have to do with uncleanness, dissipation, or ugliness. What seemed not to be infrequently impulsiveness and impetuosity in him were only the perfect responses of a mind scintillating with a degree of alertness and quickness that constantly astounded his most intimate friends. He thought and acted with a promptness possible for few. Such a personality made him a natural leader. While others might be wondering what course to pursue he had already decided. His friends relied upon the soundness of his judgment and his loyalty to them knew no abatement. In whatever group he appeared his qualities of leadership were instantly felt.

But no professional success, no promotion, none of the plaudits of his fellowman brought to him such comfort and satisfaction as the serenity of his own home. He was married in 1914 to Miss Emma Gold Hutcheson, of Rockbridge County, Va. Three children came to bless this union, and to make his home life ideal. Nothing but his professional duties could lure him away from his home. He was a devoted and considerate husband, and the playmate and comrade of his children. He experienced infinite satisfaction in entertaining his friends in his home and he was a delightful host.

His passing into the great beyond brings to a close a career of great brilliance and usefulness.

Respectfully submitted,

A. L. GRAY,  
B. R. TUCKER,  
CARRINGTON WILLIAMS,  
E. G. WILLIAMS,  
J. K. HALL,

*Committee.*

### **Dr. John Alexander Witherspoon,**

A former president of the American Medical Association, died at his home in Nashville, Tenn., April 28th, at the age of sixty-four years. He had been ill for about two months. Dr. Witherspoon was professor of clinical medicine at Vanderbilt University Medical School.

### **Dr. Charles E. de M. Sajous,**

Well known author and teacher, of Philadelphia, Pa., died April the 27th. He was seventy-six years of age and emeritus professor of materia medica, therapeutics and pharmacology at Temple University School of Medicine, Philadelphia, and professor of applied endocrinology, graduate school of medicine of the University of Pennsylvania.



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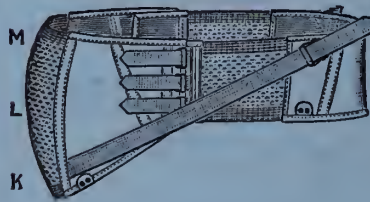
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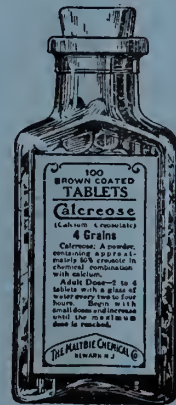
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60th Annual Meeting, Medical Society of Virginia in Charlottesville, Fall 1929

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## AGRANULOCYTIC ANGINA WITH REPORT OF A CASE.

By WILBUR M. BOWMAN, M. D., Petersburg, Va.

This is a term coined by Schultz, of Germany, in 1922, to describe a group of cases characterized by an acute onset with high fever, stomatitis, a marked leucopenia either with an absence or pronounced diminution of the polymorphonuclear leucocytes, and a relative increase in lymphocytes up to 100 per cent. In 1924, Lovett<sup>1</sup> was accredited with the first case reported in the United States. Bruggemann<sup>2</sup> states that similar anginas are mentioned in the literature back in the 80's and thus raises the question whether or not these were also cases of agranulocytic angina. The term "monocytic angina" is also sometimes applied to it.

Most of the cases reported have had counts below normal—even to a few hundred cells—but in a few, the count has been normal or even above normal for at least a part of the illness.<sup>3</sup>

### ETIOLOGY

Though the etiology is still obscure, the consensus of opinion seems to be that the disease is not a distinct entity; at least no specific agent has been found. These cases resemble closely the picture prescribed by any overwhelming infection in which there occurs a neutrophile leucopenia. In Klein's<sup>4</sup> mind is a question as to whether or not the disease is a definite entity and whether or not the disease would not be found oftener if we studied the moribund more carefully. Bruggemann states that "whether in agranulocytosis we have to deal with a disease that has a special inciting agent, or with the absence of a hormonal factor, or whether we have to deal with the primary autotoxic or exotoxic impairment, must be left to further investigations." Zikowsky<sup>5</sup> quotes Schultz as follows: "It may be assumed that the affection involves an extensive injury of the spinal cord in the domain of the granulocyte system, caused by an

infection." He, himself, states that it seems that in agranulocytosis the bone-marrow is so poisoned that the activity of the leukopoietic system is suspended. He adds further that the disease is only a symptom of sepsis. According to Weihmuller,<sup>6</sup> hemocultures are generally negative. Further, that "in rare positive hemocultures and in smears of gangrenous lesions only were found common organisms, streptococci, staphylococci, colon bacillus, etc., bacteria that habitually do not produce so pronounced leukopenia. On intraperitoneal injection of blood into guinea pigs, the clinical picture could not be produced. Neither did the exudation of the ulceronecrotic lesions of the throat of patients placed on the tonsils of rabbits reproduce the lesion." Kastlin<sup>7</sup> admits that the blood changes are result of the primary action of an unknown etiologic agent on the bone-marrow. Cultures from the oral cavity showed no uniformity of organisms and in only six cases were bacteria demonstrated in the blood. *B. pyocyaneus* has been found in the throat of several cases and in the blood in one. Vincent's organism appears to be a frequent finding in the inflammatory sites but rather expected in view of its "buzzard" characteristic. Kastlin is impressed with the fact that there is no epidemic character of the disease.

### PATHOLOGY

Kastlin reports that a stomatitis is always present. In the forty-three cases analyzed by him he found ulceration and necrosis in the following order of frequency: tonsil, nineteen; throat, thirteen; gums, nine; tongue, six; larynx, five; esophagus, two. In twenty-five of the cases a membrane was present. Extra-oral ulcerations were present as follows: stomach, nine; vagina, eight; ileum, six; colon, five; anus, four; duodenum, two; rectum, two; cervix, two; symphysis, two; hip, one; conjunctiva, one. Another author reports that necrosis of the skin was seen in one case. Cutaneous petechial hemorrhages were clinically

noted in eight cases while visceral petechial hemorrhages were found at autopsy in twelve cases. In fifteen cases, regional lymph node enlargement was noted. The liver alone was enlarged in five, the spleen alone in seven, and both in seven cases. Endothelial cell proliferation was frequently present in the spleen and lymph nodes.

At autopsy, typical necrotic lesions have been found throughout the gastro-intestinal tract as well as in the spleen and lymphatic system.

The characteristic feature of the blood change is the marked neutrophilic leukopenia with a relative increase in the lymphocytes. In the bone-marrow there is almost a total absence of granulocytic cells but a predominance of lymphocytic and endothelial cells. Kastlin reports that Zadek, Schultz, and Jacobwitz found the same to be true in the living when they examined bone-marrow removed from the sternum in three cases.

A slight secondary anemia is the usual finding. Friedemann,<sup>8</sup> in reporting his series of twenty-nine cases, states that in the majority of them the absolute number of erythrocytes was reduced but in a few cases they were either normal or slightly increased. In a case reported by Tynes<sup>9</sup> the erythrocytes were 5,760,000. As to the platelets, Kastlin reports them as normal in twenty out of twenty-seven cases recorded. Friedemann gives them as normal or increased in all of his cases. There appears to be no change in the clotting time, retraction of the clot, nor the bleeding time.<sup>10</sup>

As to the inflammatory sites, Kastlin reports that wherever found they have a similarity of appearance and show a marked lack of cellular response with no polymorphonuclear reaction.

#### SYMPTOMATOLOGY

This disease occurs at all ages in both sexes, but more often in the female, Kastlin reports 78 per cent in females and 22 per cent in males. The average age of the females was forty-six, and the males twenty-nine. The extremes of ages were four and one-half years and seventy-four years.

Though the symptoms are not constant there are several outstanding features frequently noted. The onset usually comes in a period of good health preceded by a definite illness

but "occasionally, however, it may occur in persons who have been ill for some time with a chronic disease (Klein)." The onset is sudden and characterized by a rapid rise in fever, ranging from 100° to 105° F., a general feeling of illness, and serious necrotic processes in the mouth, tonsils, tongue, or pharynx. Kastlin, Klein, and others state that a stomatitis is always present. Chills, dysphagia, and aches may accompany. Less frequently do ulceronecrotic lesions occur in other mucous membranes of the esophagus, stomach, intestine, anus, and vagina. "At times there are produced infiltrations of the mouth and edemas of the skin that present the characteristics of not arriving at suppuration (Weihmuller.)" There may be regional adenopathy and enlargement of the liver and spleen. Slight jaundice is common and more pronounced if the disease is prolonged. Less frequently do herpes, headache, muscle pains, or vomiting occur. In only two out of forty-three cases reviewed by Kastlin did bleeding from mucous membrane occur.

#### COURSE

The disease is of short duration, lasting from a few days to as many weeks. Kastlin gives the average range from four to eight days and the extremes two to forty-two days. The course of the condition is almost always fatal with a mortality rate of about 90 per cent. Out of the forty-three cases analyzed by Kastlin only three recovered. The three cases that came under the observation of Ashworth and Hines<sup>11</sup> terminated in death. In one-half of Friedemann's cases it ended fatally in eight days and was protracted in others from twenty-four up to sixty days. Massive pneumonia is a frequent cause of death. Coma often preceded death in the cases reported by Kastlin.

In the few cases that recovered, the blood picture returned to normal. Several in which there was apparent recovery were followed in a short time by reinfection or relapse and death. A case of Moore and Weider succumbed to a second attack after a two year interval of good health.

#### DIAGNOSIS

This rests chiefly on the blood examination which shows a great reduction in leucocytes affecting mainly the granulocytic series which are either absent or reduced to exceedingly



low percentages. The lymphocytes are relatively increased.

A differential diagnosis must be made in the main from acute poisoning by thorium, arsenic, benzol, and the Roentgen rays; the acute leukemias, aleukemic leukemia, sepsis, and Ehrlich's plastic anemia.

The poisons listed may produce leukopenia but may be ruled out by the lack of a toxic history.

The leukemias show a somewhat similar onset, especially the acute lymphatic form. In these, bleeding from mucosae and petechial hemorrhages are, however, constant and usually precede gangrene. There is a hyperleukocytosis usually above 50,000 with abnormal and immature cells. Anemia is generally more pronounced and rapid.

In cases of aleukemic leukemia the differential diagnosis may be difficult when leukemic elements have not been produced. Nevertheless, in these cases of hypoleucocytosis it is not so considerable, the diminution of polys is not so intense, and usually immature and abnormal elements are encountered early. Later, the blood picture tends to assume the leukemic form.

Cases of sepsis have been described showing neutrophilic leukopenia, a relative lymphocytosis, and stomatitis similar to agranulocytic angina but few cases of the latter have shown positive blood cultures and, at autopsy, septic splenitis is absent.

Merely to mention the fact that several cases were diagnosed as diphtheria and in others Vincent's organisms were found predominating the bacterial flora should put the physician on his guard.

#### TREATMENT

The etiology not being known the treatment is especially symptomatic. Local treatment of the inflammatory sites seems to be a matter of choice with physicians. Arsphenamine, tartar emetic, diphtheria antitoxin, non-specific protein, and transfusion have been used. Transfusion has not given any encouraging results up to the present although Hoch<sup>12</sup> reports a recovery in a patient with a leucocyte count of only 1,200 following a transfusion of 500 c.c. of blood. X-ray treatments over the long bones with carefully controlled small doses seem to offer the best hope. Friedemann reports six cases as cured by irradiation. Drs.

Call, Gray, and Hodges<sup>13</sup> reported a case with recovery after Roentgen-ray therapy. A total of seven cases treated by irradiation and followed by a prompt improvement in the blood picture, throat manifestations, and return to normal seems to indicate very strongly that the treatment was responsible for the results.

#### REPORT OF A CASE

Mrs. M. D., a white woman, aged thirty-one, was admitted to the Petersburg Hospital, February 14, 1929, at 9:30 P. M.

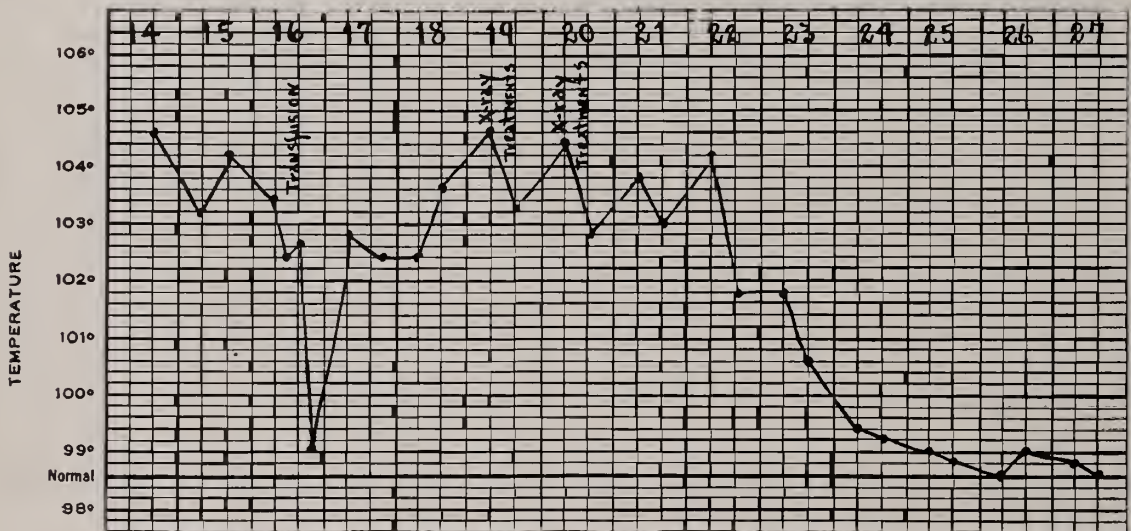
FAMILY HISTORY: Negative.

PAST HISTORY: Other than ordinary attacks of colds and tonsillitis, her health had been good. On December 28, 1928, she had a mild case of grippe which lasted three or four days.

PRESENT ILLNESS: In January, 1929, she went on a motor trip with her husband to Hot Springs, Ark. On the return she contracted tonsillitis. When seen at home on February 1st, her throat was slightly sore, temperature 100.5° F., and tonsils of the imbedded and infected type. No membrane present. On the dorsum of her tongue near the tip was a small, painful ulcer the size of a pin-head. Her nose felt somewhat sore. By the 4th her temperature had returned to normal, and on the following day she was up. On the 6th her husband called and stated that her nose and throat was so dry that it made breathing difficult. A nose and throat specialist was taken to see the patient and, as we walked into the room, she was up and stated that she felt all right. Examination by the consultant showed her nose negative, ulcer on tongue healed, and infected tonsils which he advised should be removed. No sore throat was complained of. Her temperature was 100° F., so she was advised to go to bed. On the 9th her temperature had increased to 101.8° F. and attention was called by her to a soreness in her gums of the upper left side. On elevating the lip, an inflamed, reddened area about the size of a dime was observed on the gums in the region of the bicuspid. This was shown to her husband and he was told that it seemed as though the trouble was here. On the following morning (Sunday) it was obvious that the condition was progressing rapidly. A thick, necrotic area of a yellowish-gray color had replaced the initial lesion and gave the appearance of a pointing abscess. No

fluctuation or bleeding of gums was present. No particular odor was noticeable. She complained of increased soreness in her gums. Believing the condition to be a dental problem, her dentist was called. He thought it be a case of acute Vincent's infection and so began the treatment. On the following day (11th), a smear was obtained from the lesion and examination showed a few streptococci and very few Vincent's of the fusiform variety. The next day another slide showed numerous Vincent's of both varieties. This, however, was obviously a secondary infection. In spite of persistent local treatment, the process continued to spread posteriorly along the gums accompanied by a noticeable swelling of the left jaw, a gradual rise in temperature to

Physical examination showed a well nourished woman of the short, obese type who appeared critically ill. Her teeth had numerous fillings. Tongue coated with a white furring. Only a slight halitosis detected. A grayish necrotic lesion extended from the canine to the second molar in the upper left jaw on the buccal and palatine surface with hyperemia of the entire oral cavity. The left jaw was swollen from the neck to the left eye. Edema of the lower left eyelid caused partial closure of the organ. Tenderness was present over the left antrum. Tonsils were chronically infected. No icterus, sore throat, or definite glandular enlargement. Heart, lungs, liver, spleen, and pelvic examination was negative. Blood pressure S. 130, D. 82.



102.2°, the pain in the region of infection severe enough to require opiates for relief. By February 14, at 7 P. M. her temperature reached 104° and she complained of a drawing sensation and tightness in the entire left side of her face as well as intense aching. Two dentists were called in as consultants. They agreed that Vincent's infection was secondary; that the process was spreading posteriorly; and that the left antrum was markedly congested or contained pus. She was moved to the hospital that night.

On admission her temperature was 104.6°, pulse 110, and respiration 30. Leucocytes 5,650, hemoglobin 55 per cent, polymorphonuclears 1 per cent, and lymphocytes 99 per cent.

Ice compresses were applied at short intervals to left jaw. Sodium perborate was used as a mouth wash. Mercurochrome was applied to the necrotic lesions. Liquid diet ordered. A codein-aspirin combination was given to relieve pain. She spent an uncomfortable night, sleeping only at intervals.

February 15th: She complained of severe aching in the left jaw. An X-ray of the skull, sinuses, and lower jaw was made with report as follows:

The films show the skull from various directions, the nasal accessory sinuses and the left halves of the upper and lower jaws.

The skull is normal in appearance.

The left frontal sinus is extremely dense



and its outline very indistinct due to its being filled with pus and granulations. The right frontal sinus is a little denser than normal but not completely filled. The ethmoids are clear on both sides. The left maxillary antrum is about two-thirds filled, apparently with granulation tissue and a little pus. The right maxillary antrum is about one-half filled with granulation tissue.

The sphenoid sinus is very cloudy; however, it is not completely filled.

The examination rules out bone destruction about the apices of the lower left lateral incisor, canine, first and second bicuspid and the first molar teeth and about the upper left central and lateral incisors, first and second bicuspid teeth.

Wassermann was taken and later reported as negative. Streptococcus vaccine, one-half c.c. was given. Quinine, grains four, was administered every four hours to tolerance. Blood for culture taken did not show any growth up to twenty-three hours. Patient perspired freely at times.

During the day approximately a dozen physicians were called in as consultants. Varied diagnoses were made as streptococcus infection, acute lymphatic leukemia, severe oral sepsis, and acute Vincent's. Several were non-committal.

Toward night the swelling in face increased. Edema was noted in the right eyelid. She complained of pain in throat and severe pain in right jaw. During the night she continued to perspire freely. The streptococcus vaccine was increased to one c.c. She seemed to have a fairly good night and her condition was apparently a shade better.

February 16th: Smears taken from the necrotic lesions were reported positive for Vincent's organisms. During the morning she rested better. Later she complained of aching in her face and slight difficulty on swallowing. She talked and mourned while sleeping. Another one c.c. of streptococcus vaccine was given. Whiskey was ordered to be given patient. A slight halitosis noted. At 10:30 A. M. a diagnosis of agranulocytic angina was made by the writer. This was agreed with by one of the consultants who also committed himself in writing later in the day. At 4:20 P. M. 500 c.c. of citrated blood was given. At 5:10 P. M. she had a chill which lasted seventeen minutes. She perspired freely and felt tired.

Pulse volume was good. Her temperature dropped to 99 as shown by the chart. She began to expectorate a small amount of yellowish sputum. At 7 P. M. the patient claimed she felt stronger and better. The swelling in her face had decreased and her condition seemed improved.

During the night she continued to perspire freely and expectorate yellowish sputum. Towards morning she became nervous and complained of being sore over her entire body. In all she had a fairly good night.

February 17th: She was very nervous and so tired that she was unable to go to the X-ray room for treatments. No pain was complained of. Fairly good day, however, though her temperature returned to 102.8.

During the night she was so nervous and restless that luminal was required. Still expectorated yellowish sputum. Nourishment was refused. She had an uncomfortable night. Towards morning she complained of flatulence but very little pain. Edema of jaw not as pronounced. Protargol used in nostrils.

February 18th: She began the day by being nervous and at times drowsy but no particular pain. Later, she became more comfortable. Swabs were taken from mouth again for a complete bacteriological report. The direct smear showed staphylococci, streptococci, pneumococci, micrococcus catarrhalis, and many saphrophytic organisms of various kinds. No organisms of Vincent's were found. The culture did not show any additional organisms. She complained of slight aching in lower abdomen and of being a little nervous but in all she had a fairly good day.

During the night she perspired freely and for a short interval became very nervous, restless, and groaned in her sleep. Once she complained of aching all over. She seemed very toxic and even refused her nourishment.

February 19th: Halitosis more pronounced. Dioxygen, one-half per cent solution was used to irrigate gums. She appeared drowsy and complained of aching in lumbar region. Roentgen treatments of long bones started.

At 8:15 P. M. a consultant from Richmond who had three similar cases arrived and agreed with the diagnosis of agranulocytic angina. His prognosis was grave with about a 10 per cent chance for recovery. At his suggestion, Lilly's liver extract (one ampoule in orange juice) was commenced and given three times

daily. During the night she complained of pains in back and jaw and of being nervous.

February 20th: She rested fairly well. Small boils were noted on the anterior surface of each arm at the elbow and on the left ankle. Small particles of tissue noted sloughing from mouth. Complained of backache. She was taken to X-ray room for further treatments. Complained of a spongy feeling in her

from pains in her back, up to 9:30 A. M. After that time she was more comfortable, but had pains in chest towards morning.

February 22nd: Heat rays were applied to back, abdomen, chest, and shoulders for pain and relief afforded. Had a very good day.

During the night, swelling in the left jaw was more noticeable. She complained of pain in her mouth a great deal up to 10:00 P. M.

BLOOD

DATE	R. B. C.	LEUCO.	Hb. g. Per Cent	NEUT. Per Cent	LYM. Per Cent	L. MON. Per Cent
2-14.....	.....	5,650	55T	1	99	.
2-15.....	3,970,000	3,600	69S	3	91	5
2-16.....	3,940,000	2,800	68	3	91	6
2-17.....	3,216,000	3,150	..	4	96	.
2-18.....	3,590,000	2,800	70	4	94	2
2-19.....	3,295,000	2,600	69	4	88	8
2-20.....	4,030,000	2,800	73	7	90	3
2-21.....	4,035,000	2,600	73	14	71	15
2-22.....	3,930,000	2,800	71	11	77	12
2-23.....	4,060,000	3,400	73	19	74	4
2-24.....	.....	5,400	..	43	57	.
2-25.....	4,130,000	5,600	75	35	63	2
2-26.....	4,100,000	7,200	74	47	51	2
2-27.....	4,150,000	7,600	77	49	49	2
2-28.....	4,230,000	8,400	80	51	47	2
3-1.....	4,220,000	9,000	82	60	38	2
3-2.....	4,260,000	9,200	82	54	45	1
3-3.....	4,256,000	6,700	..	38	62	.
3-4.....	4,220,000	8,600	83	57	42	1
3-5.....	4,240,000	9,600	84	53	46	1
3-6.....	4,230,000	8,800	83	58	41	1
3-7.....	4,270,000	9,600	83	60	37	2
3-14.....	4,310,000	8,400	84	61	37	2

URINE

DATE	APPEARANCE	SP. GR.	REACTION	ALBUMIN	SUGAR	CASTS	R. B. C.	W. B. C.
2-15	D. amber S. cloudy	1.018	ac.	Heavy trace	Neg.	Occas. Hya. and F. Gran.	V. Rare	Rare
2-18	Cloudy Straw	1.010	ac.	Heavy trace	Neg.	V. rare F. Gran.	Rare	Rare
2-25	Straw V. cloudy	1.011	ac.	Faint trace	Neg.	Hyaline V. rare	Rare	Rare

Bile reported as negative.

mouth. In all she had a fairly good day and improvement could be noted in her condition.

February 21st: Soreness and aching in back as well as nervousness complained of. Particles of tissue continued to slough. Pains in abdomen. Sclera of eyes had a definite yellow tinge. Percentage of polys had increased from 7 per cent the previous day to 14 per cent.

During the night she was uncomfortable

but after that had a good night. Condition seemed better. It was now thought that she at least had an even break for recovery.

February 23rd: A small amount of loose, necrotic tissue was removed from her mouth. A moderate edema of left side of face was present. She complained of soreness in left jaw often. Cervical glands were slightly en-



larged and tender, especially those of the left side. She rested well during the day.

She also spent a more comfortable night. The swelling in the left jaw seemed to have decreased. A decided drop in temperature was recorded.

February 24th: Very little swelling noted in left side of face and neck. Boils were still present. She was allowed to use a back rest. Temperature continued to drop. Marked improvement in leucocyte count noted. Total now 5,400, neutrophils 43 per cent, and lymphs 57 per cent.

During the night she was very comfortable. It now looked as though her chances for recovery were good.

February 25th: Condition of mouth improved. Patient put on soft diet.

February 26th: Appetite good. No pains. Boils healing. A comfortable day and night.

given a clinical classification. Further, he hopes that sufficient data has been included to allow one to formulate an opinion as to etiology of this comparatively rare and highly fatal disease. Until further light is shown on the subject, the writer must agree with others that the disease is not due to a definite entity but appears to be the result of an overwhelming effect of mixed bacterial toxins in an individual whose resistance is already lowered by some preceding illness.

As to the treatment of this particular case, the one outstanding feature is the part X-ray apparently played. The noticeable improvement in the blood analysis, mouth condition, and rapid recovery following its use would indicate that it at least was a strong factor for the results obtained. Because of its importance the writer requested Dr. Clarkson to furnish him with his method of treatment which was given as follows:

#### ROENTGEN TREATMENTS

DATE	SPARK GAP	M. A.	DISTANCE	TIME	FILTER	AREA
Feb. 19th.....	8½	4	20	6 min.	6 m. m. Aluminum	Five areas, including all long bones of lower extremities.
Feb. 20th.....	8½	4	20	6 min.	6 m. m. Aluminum	Four areas, including all long bones of upper extremities.

February 27th: Mouth continued to improve. Appetite very good.

February 28th: Patient put on regular diet and allowed to sit up in chair for short time. No pains or complaint at all. Sodium perborate discontinued and normal saline used as mouth wash.

March 4th: By this time she had recovered sufficient strength to walk about the room and on the 7th she was allowed to go home. At this time her blood analysis was as follows: erythrocytes, 4,310,000; leucocytes, 8,400; hemoglobin, 84 per cent; polymorphonuclears 61 per cent; lymphocytes, 37 per cent; and large mononuclears, 2 per cent.

#### COMMENT

The writer, perhaps, should apologize for reporting this case in detail but those who have had the unfortunate experience to see a similar case or cases can appreciate his position, especially when this disease has not been

found normal. She was recently seen and stated that she felt just fine.

The patient's blood count has been made since her discharge from the Hospital and

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123 North Union Street.

## AGRANULOCYTIC ANGINA—WITH REPORT OF A CASE.\*

By HAROLD W. POTTER, M. D., Newport News, Va.

Between the years 1922 and 1928, there have been forty-nine cases reported, in which the cardinal symptoms have been agranulocytic leukopenia accompanied by a painful angina, gangrenous and necrosing in nature. To this condition Schultz<sup>1</sup> applied the name, agranulocytic angina. Of the forty-nine cases reported, six have recovered.

The etiology of this malady is unknown. The literature suggests many possible etiological factors: a dysfunction of the endocrine system, bacterial sepsis, some unknown toxin in the bone marrow, have all been considered by the different authors without arriving at any satisfactory conclusions.

The symptomatology in the various cases reported has in some respects been varied. Some cases have had jaundice, some lymphadenopathy, and in some the presence of the symbiotic spirillum of Vincent and fusiform bacillus has been demonstrated in smears from the oral lesions; but, in all of them, the stomatitis, accompanied by a neutrophilic leukopenia, sometimes absolute, and a relative lympho-cytosis, have been the outstanding symptoms.

The diagnosis depends largely on the laboratory findings, in examination of the blood, along with the presence of the gangrenous stomatitis and angina.

The blood picture sometimes shows a decrease in the granulocytic elements, as in the case reported here, a complete absence of the neutrophilic element. The early or immature types do not appear. Occasionally large lymphocytes with a deeply basic staining nucleus are found. These are probably degenerating types. As the disease progresses, the number of leucocytes diminishes and a white count of extremely low total results. In the case reported here, the total count on the day of death was 800 cells per cu. m.m. A mild secondary anemia accompanies the disease.

The stomatitis is painful and usually manifests itself by the presence of gangrenous, necrotic ulcerations on the tongue and gums. The tongue becomes swollen and red, swallowing is difficult. The throat in many cases be-

comes the site of similar ulcerations and is red and swollen about the site of the ulcers.

Smears and cultures from the mouth and throat reveal a myriad of organisms—the streptococcus, staphylococcus, pneumococcus and the other organisms whose habitat is the respiratory system are found, and in some cases *B. pyocyaneus* and the organisms of Vincent's are found.

Blood culture is usually negative. There is usually some adenopathy of the cervical chain due to the angina, but the appearance of general adenopathy is not usual. The spleen may be enlarged. The condition is differentiated from leukemia, both acute and aleukemic, by the blood picture; from sepsis by the blood picture and blood culture; and from poisonings—such as benzol and arsenic—by the blood picture. Fulminate diphtheria is differentiated by the blood picture and throat smear and culture.

The prognosis is extremely bad, but not hopeless.

The pathology revealed at autopsy in the cases reported by Kastlin<sup>2</sup> presents the signs of the terminal pneumonia infiltration of the spleen by mononucleocytes and evidence that the bone marrow had been the site of destructive processes.

There is very little suggested in the literature along the lines of treatment. Hueper<sup>3</sup> suggests transfusions, Roentgen therapy over the long bones in stimulating doses, and the use of polyvalent antistreptococcus serum. All three of these suggestions were used in the case presented here without success.

### CASE REPORT

Patient, L. C. M., female, white, single, aged forty-three, member of a cloistered order.

*Chief Complaint:* Swelling of right foot and ulcers of tongue and gums.

*Family History:* Mother died of tuberculosis at forty-one years. Otherwise negative.

*Past History:* Had typhoid fever at fifteen years, and had neuralgia at twenty-two, relieved by removal of tonsils. History reveals no past illnesses referable to cardio-respiratory, gastro-intestinal or genito-urinary systems.

*Menstrual History:* Began at thirteen years, regular, no dysmenorrhea. Last period just completed.

*Weight:* Usual, 170 lbs. Present, 173 lbs.

*Present Illness:* Patient first seen on Janu-

\*Read before the Warwick County Medical Society, February 25, 1929.



ary 17, 1929, complaining of painful swelling of right foot, where there was a small infected area arising from a split between the fourth and fifth toes. At this time the patient did not mention the fact that her tongue and gums were giving her discomfort. The following day, however, examination of her mouth revealed three ulcerated necrosing areas on her tongue, and one small ulceration on the gum just below the first lower lateral incisor. Her temperature at this time was 101° F. Local treatment for the infected foot was instituted and it cleared up rapidly and completely.

Because of the severity of the ulcerations in her mouth, she was sent to the hospital on January 21, 1929. Upon admission her temperature was 99.5, pulse 100, respiration 18. Physical examination upon admission revealed a normally developed white woman, who did not look acutely ill. No abnormality of the skull was noted, and there were no petechial spots on the mucous membranes or skin.

The lips were cracked and dry. Four ulcers about  $\frac{1}{4}$  cm. in diameter, well circumscribed, were noted on the lateral borders of the tongue. The breath was foul. One small ulceration of the gum just below the first lower lateral incisor was noted. The teeth were in good repair. The eyes reacted normally to light and accommodation, and the ocular movements were good. The thyroid was not enlarged. The anterior and posterior chain of cervical lymph nodes were slightly enlarged. The thorax revealed no abnormalities.

Examination of the lungs revealed normal breath sounds, with no alteration of percussion note; vocal and tactile fremitus were normal and no adventitious sounds were heard. Upon examination of the cardiac area, no shocks or thrills were made out, no increase in size disclosed, and the sounds were clear and normal, with no murmurs. The pulse was 100, regular in force and rhythm. Blood pressure was 130/98. The abdomen was not rigid, and the liver and kidneys were not palpable. The lower edge of the spleen was palpable below the rib margin, but was not tender.

The extremities were normal, except for the split between the fourth and fifth toes of the right foot. That was not painful, and had no redness or swelling at the time. (The infection described in the history had subsided

under local treatment, and was not in evidence.)

#### LABORATORY REPORTS

##### *Urinalysis:*

January 22nd.—Voided specimens: amber, clear, and spec. grav. 1.020. Albumin, a trace; sugar negative. Microscopic—Few white cells, many epithelial cells, rare hyaline casts.

January 30th.—Amber, acid; albumin, a trace; sugar negative. Microscopical—Many white cells, many epithelial cells, many hyaline and granular casts.

##### *Blood:*

January 23:	
White blood cells .....	3,200
Red blood cells .....	3,440
Haemoglobin .....	60%
DIFFERENTIAL:	
Polymorphonuclear .....	0
Small lymph. ....	8,690
Large lymph. ....	1,470

A few lymphocytes with large basic staining nuclei seen.

January 27th.—After transfusion—

White cells .....	2,400
DIFFERENTIAL:	
Polymorphonuclear .....	0
Small lymphs. ....	88%
Large lymphs. ....	12%

An occasional lymphocyte which appeared to be a degenerating type was seen.

January 30th.—After transfusion—

White cells .....	800
DIFFERENTIAL:	
Polymorphonuclear .....	0
Small lymph. ....	85%
Large lymph. ....	15%

*Blood Culture:* Taken January 23rd, negative after eight days' culture.

*Culture:* (From smears from ulcers in mouth.) Staphylococcus, streptococcus, hemolyticus, and pneumococcus. No organisms of Vincent's angina seen. Blood Type II—Wasermann and Kahn negative.

#### PROGRESS OF CASE

After entrance to the hospital, the patient grew steadily worse. The temperature ranged from 99.5 to 106. The average daily temperature was 102.5. The pulse was rapid during most of the illness.

On January 26th, at noon, 500 c.c. of citrated blood was given by the indirect method, and

a stimulating dose of X-ray therapy was given over the femur and tibia.

On January 27th, 20 c.c. of polyvalent anti-streptococcus serum was given intramuscularly.

On January 28th, a stimulating dose of X-ray therapy was given over the long bones of the upper extremity and thorax.

On January 29th, a transfusion of 500 c.c. of citrated blood was given by the indirect method.

None of these means of therapy yielded any encouraging results. The white count dropped steadily. The care of the patient's mouth was put in the hands of Dr. Morgan, the staff dentist, and local cauterization of the ulcers and mouth washes were employed. This treatment kept the patient's mouth comfortable. Local application of arsphenamine was also used.

On January 27th, ulcerations similar to those in the mouth appeared on the wall of the pharynx, two in number. On the evening of January 28th, the patient's temperature rose to 104, and during the night she began to develop a cough. Examination of the chest on January 29th revealed the presence of many moist rales throughout the entire chest.

On January 30th, the temperature remained between 103 and 104. During the day the cough grew worse, breathing became dyspneic. At 6:00 P. M. the temperature was 106, and at 8:00 P. M. the patient died.

An autopsy could not be obtained.

#### COMMENT

The presence of the infected foot at the onset of the disease suggests the possibility of a septicemia, but the blood picture, the early and complete clearing up of the local infection and the absence of growth on the blood culture, I feel rules out this condition as a causative factor.

The response of the ulcers in the mouth and throat to the local treatment instituted by Dr. Morgan, the staff dentist, was gratifying. The patient got considerable relief from the oral pain after use of cauterization to the ulcers and the constant use of mouth washes.

The rapid progress of the terminal bronchopneumonia shows only too well the low level to which the resistance sinks in the terminal stages of this disease.

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### ETIOLOGY AND SYMPTOMATOLOGY OF ANGINA PECTORIS.\*

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The etiology is the most obscure of things known of angina pectoris. Huchard has enumerated sixty-four theories as to the causation of this dreadful disease. More recently the numbers, the theories and explanations, have mounted until a later enumerator has counted eighty-two theories to account for this condition. None of these theories completely explains it. In fact, it almost seems that every individual who writes seriously on this condition has some particular theory, or variation of existing theories, to explain the condition of angina pectoris.

Some of the facts that would seem to be easily soluble are still in dispute. As an example, Vaquez<sup>2</sup> states that heredity is an important factor; and Merkland<sup>3</sup> is convinced that this is so. On the other hand, Stolkind<sup>4</sup> states that it is not a hereditary disease.

The first essential for a discussion of the etiology of this condition must be a clear definition of it. The definition as taken from Osler<sup>5</sup> is "an agonizing pain in the region of the heart, radiating to the left arm or shoulder, or neck, accompanied at times with a sense of impending death." There are certain pathological changes that are found sometimes in cases that have suffered the terrific pain of angina; and these changes were thought early in the history of angina pectoris to be the cause of the condition. I am speaking of coronary sclerosis. However, definite information has been piled up in the pathology of the condition, and this information is that coronary sclerosis may exist in exaggerated form without any pain being present.

Some of the statistics may be of interest in this connection. Lambert<sup>6</sup> reports, in 1924, total deaths in New York City—71,252. Of these, 15,826, or 22 per cent, were due to some form of heart disease; 410 deaths, or 2½ per

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cent, were due to angina pectoris. Levine,<sup>7</sup> in a study of 103 cases of angina pectoris, gives the average age as 54.1 years for males, 54.3 in the females, or 54.2 years; 7.4 per cent of this series showed syphilis as an etiological factor. The most common finding was arteriosclerosis.

Some of the pathological findings that account for the pains in angina pectoris in certain cases are: an aortitis with plaques at the base of the aorta; atheroma of the aorta; syphilitic aortitis; occlusion of the mouth of the coronary arteries; coronary occlusion; sclerosis of the coronary arteries; atheroma of the coronary arteries; aneurysm of the pulmonary artery; infarction of the heart; rupture of the heart; adherent pericardium. These various pathological findings occur, and each of them have advocates who claim they are the etiological factors in angina pectoris; and yet the complex syndrome, known as angina pectoris, is not dependent upon anyone of these facts, nor any combination of these facts and findings, so far as is known.

Some have explained the syndrome as a sclerosis of the coronaries plus claudication of the coronary arteries. However, no proof has been forthcoming that there is such a thing as claudication of the coronary arteries.

Allbutt<sup>9</sup> states that the syndrome is due to aortic disease in which there is irritation of the nerve end plates in the first part of the aorta by attacks of aortitis. Mackenzie<sup>10</sup> explains it on the hypothesis of myocardial fatigue. Vaquez, Balfour and Albrecht claim it is due to a pathological dilatation of the ventricular muscle. Keefer and Resnik<sup>11</sup> explain the syndrome as anoxemia of the myocardium. Stolkind<sup>4</sup> explains it as due to three factors: one, a clinical and toxic substance in the blood; two, a state of nervous system; three, a condition of the heart and aorta. Moschowitz<sup>12</sup> reports a case of angina caused by tobacco smoking. Shaw<sup>13</sup> explains the angina as due to a nervous lesion, located in the region of the lower cervical or upper dorsal cord, the associated ganglia or their connections, exciting secondary pathological changes in the cardio-aortic region. Danielopolu<sup>14</sup> believes that the starting point in angina is in the myocardium; or, more precisely, at the left side of the heart; and suggests that the process is analogous to that which is concerned in the fatigue of voluntary muscles. In other

words, an inadequate blood supply to the left side of the heart. About the only common idea to all of these theories is that pain is present in angina pectoris. There is slight agreement in the mechanism of the pain. Up until a few years ago the attention of workers had been directed mainly as to the pathological condition of the heart in angina pectoris. Jonnesco practiced extirpation of the ganglia at the base of the neck for relief of pain in angina pectoris. Since this, more attention has been directed toward the nervous factors which produce the pain. Lambert<sup>15</sup> states that "cardiac pain of all intensities, from the transitory uneasiness in the precordium to the most intense agony suffered in angina, can only be explained by irritation or pathological stimulation of the sensory nerves or nerve endings of the heart and aorta. Neither muscle fibers, nor connected tissue nor blood vessels can transmit the sensation of pain, *except* through their sensory nerve supply. Neither spasm nor cramp of certain of these tissues, nor yet fatigue, exhaustion, nor the clinical products resulting therefrom, unless these latter, acting from the sensory nerve endings, can explain pain which is produced only in sensory nerves. Neither spasm nor claudication of blood vessels produces pain, except as they cause pressure on sensory nerves and their endings; or sudden deprivation of the blood supply. The pressure on sensory nerves or their endings from any cause, or the sudden deprivation of blood supply cause all gradations of pain anywhere in the body; and one does not have to go outside of these processes to explain cardiac pain and Heberden's angina.

"Clinically, cardiac pain occurs with those pathological lesions which produce an increase of scar tissue, or sudden diminution or cessation of blood supply in the tissues of the myocardium and aorta. Acute myocardial inflammation and acute endocardial infection do not give pain. Pain does not accompany the cardiac irregularities, either with toxic extrasystole or the degenerative processes, producing auricular flutter or fibrillation, or heart block or bundle block."

It is necessary here to review briefly the nerve paths to the heart. It must be remembered that the efferent nerves are stimulated at their end-organs in the central nervous system; and the impulse is carried to the peri-

phery. The exact contrary is the case in the afferent nerves in which the end-organ is in the periphery, and the impulse arising therefrom is conducted to the central nervous system. One nerve and one nerve fiber cannot carry both afferent and efferent impulses. In other words, efferent impulses flow from the central nervous system to the periphery, while in afferent nerves the impulses flow from the periphery to the central nervous system. The application of this to the problem of angina pectoris is that stimulation of the end-organ of afferent nerves conducts impulses to the brain which are registered as pain; and that successful section of nerves carrying these impulses results in a relief of the pain.

The nerve supply to the heart comes from three sympathetic nerves and the cardiac branch of the vagus. There is a great deal of variation in the nerve supply to the heart. There is a plexus of ganglia about the base of the aorta and the deep cardiac plexus, the network of nerves and nerve fibers joining these ganglia and nerves. There are anastomoses between the superior and inferior cardiac branch of the vagus, the superior cardiac nerve, and the middle cardiac nerve. The middle cardiac nerve arises from the inferior cervical and first thoracic ganglia, all of these fibers and nerves making a maze of complexity.

The definite things known are a heterogeneous assortment. The outstanding facts are: 1. An agonizing pain that may produce death; 2. No specific pathological lesion of angina pectoris is found in the heart; 3. The pain is relieved by the nitrites; 4. The pain is relieved by section of the afferent nerve from the heart. These various considerations lead one to wonder whether or not angina pectoris is to be considered as a heart disease. The problems of angina pectoris are peculiarly unfitted for animal experimentation. However, certain facts have been discovered during operations upon human beings, and this information is most important in explaining the factors which enter into the production of the terrific pain. It will be remembered that Francois Frank,<sup>16</sup> in 1899, proposed section of the cervico-thoraco sympathetic in cases of angina pectoris. His suggestion has only been acted upon since 1916 by Jonnesco. Later than this, Leriche<sup>17</sup> reports certain information of pain during operation in the case of a man under local anesthesia induced for sympathec-

tomy. The anesthetic had not been given deeply enough to affect the sympathetic nerve. Subsequent electric stimulation of the left stellate ganglion caused intense pain and oppression in the precordial region, and in the first two or three intercostal spaces. The patient had never had attacks of angina pectoris. The pain subsided at once after injection of novocaine into the same ganglion. In two other cases an electric current applied to the upper part of the left thoracic ganglion caused sharp pain in the corresponding arm. Applied to the lower part of the ganglion, it caused pain in the region of the heart. A similar but less pronounced pain appeared on squeezing the ganglion. An attack of angina pectoris occurred in a woman during sympathectomy performed for angina pectoris; the paroxysm ceased immediately after an injection of novocaine in the left inferior cervical ganglion, although the rami communicantes had not been severed.

The information of this nature that we have indicates that, whatever the pathological condition in the heart may be, the pain production is intimately associated with the sympathetic nervous system. The co-ordination of reflexes of the circulation is a very complex affair. These reflexes provide for a change of heart rate, regulation of the volume of cardiac output, pressure changes, vasomotor phenomena of tonus of vessels and heart, of respiratory change, as also of chemical, toxic and biologic blood conditions, and the effect of emotion and mental state upon these things. Furthermore, these things are complicated by various types of pathologic lesions in the body and pathological cardiac lesions that occur and modify all of these reflexes. Since we know that in diseased hearts with an identical pathological lesion, pain may occur in some and not in others, we may be thoroughly logical in concluding that the production of pain is outside of the heart. Again, since pain may be produced by certain procedures on the left stellate ganglion, and relieved by anesthetizing it, one infers that the lesion of angina pectoris is in the autonomic nervous system, and particularly in the ganglia concerned in receiving the afferent impulses from the heart.

This idea has been expressed by Shaw,<sup>13</sup> and he has performed certain experiments which tend to strengthen the hypothesis. Experimenting upon rabbits, he produced an irritative le-



sion of the nerves in the neck, subjecting them to a chronic irritation. After a certain length of time the irritation thus set up produced certain degenerative changes, and atheromatous changes in the aorta and heart.

There are some physiological facts that have been discovered and which are related to the attacks of angina pectoris. Most of the cases seem to show a slight increase in the systolic blood pressure, though cases are reported in which the opposite occurred. There are observations reported by Danielopolu<sup>14</sup> in which the plethysmographic tracings of the volume of the arms were made during an attack of angina pectoris. These tracings showed an increase in the volume of the arm, which means a peripheral dilatation. Feil and Siegel<sup>15</sup> have reported electrocardiographic tracings of individuals during an attack of angina pectoris. They have also, on these cases had electrocardiographic tracings immediately before the attack, and tracings after the attack of pain had subsided. In the instances reported, these are very instructive. The T-wave of the electrocardiogram in the second and third leads becomes wholly inverted during the attack of cardiac pain, the inversion of these waves gradually resuming their normal contour after the attack had subsided. The negativity of the T-wave indicates a sudden dilatation of the heart during the paroxysm. Information regarding the dilatation of the heart during attacks of angina pectoris is given by Vaquez<sup>2</sup> and by Merklund. These observers have noted by fluoroscopic examinations of the heart immediately after a paroxysm of angina pectoris that the diameters of the heart were increased, and especially was there a dilatation of the left ventricle and the aorta. The further observation was made that after the attack had subsided and the symptoms of angina had disappeared by the proper procedures, the heart resumed more nearly its normal size. Observations of this nature from such outstanding men are facts that cannot be lightly dismissed. How, then, are we to explain the repeated attacks of angina that are known to occur? Vaquez illustrates the phenomena by stating that the permanent dilatation of the bladder that follows disease of the prostate does not provoke pain, but sudden distention of the bladder causes acute distress. "Distention is produced wherever a hollow organ, bladder or heart, is momentarily

incapable of adapting itself to excessive work; and this is the only form that is attended by conscious reaction. We can understand, therefore, why the left ventricle, as well as the aorta, surprised by sudden spasm of hypertension, becomes over distended and that the resulting excitation of the nerve filaments of the myocardium, transmitted to the cardiac plexus, creates a faithful likeness of the angina syndrome." In other words, Vaquez states that there is a sudden spasm first, which produces distention of the aorta, and the distention of the aorta initiates a reflex which permits an acute dilatation of the heart.

In the production of pain by dilatation of the heart, the one essential is that the dilatation occur suddenly. We know, however, that all dilatations do not present the pain of angina pectoris; so there must be some variable introduced into the mechanism of the pain production of angina pectoris to explain the fact that pain is present sometimes, and absent at times. The factor must be the autonomic nervous system; if we combine Shaw's hypothesis and that of Vaquez, we will then have an hypothesis which will explain the mechanism of heart pain, whether it occurs in those cases with a definite disease of the heart and presenting the pathological lesions that have been variously described, or the production of cardiac pain of the anginal syndrome that is known to occur where no demonstrable pathological lesion exists in the heart, aorta or coronaries. To restate these things succinctly, Vaquez's opinion is that angina pectoris is produced by sudden dilatation of the heart; Shaw states that angina pectoris is due to a nervous lesion, located in the region of the lower cervical or upper dorsal cord of the associating ganglia, or their connections.

It must be borne in mind that information obtained in the study of angina pectoris is from patients presenting all degrees of disease and of practically all ages. If the term, angina pectoris, is accepted loosely, we must include as etiological factors in the picture of angina pectoris the pathological conditions that have been described in these cases. If we accept the term strictly, then we must know that there is no definite pathological picture that has been demonstrated as the causative or etiological factor of angina pectoris.

#### SYMPTOMATOLOGY

The symptomatology of angina pectoris has

been described many times, the first accurate description being by Heberden; yet, the seriousness with which we all look upon angina pectoris leaves interest in it, however often we discuss it. How can one describe pain to portray what one sees in attending a patient suffering with angina pectoris? The pain is of such intensity that life and death become of secondary import; and the fear of impending death, so often spoken of, is really the fear of unbearable pain. The attack comes suddenly, breathing is suspended, the hand placed over the heart, he is stopped immobile with face like death, pale and solemn, as if awaiting the judgment of God. There is no twitching or writhing; no energy, however slight, can be wasted; the issue of life or death is in a delicate balance, and the outcome cannot be foretold.

One hears more of the fear of death in the neurasthenic patient with palpitation of the heart than in a patient suffering with angina pectoris. Kahn<sup>19</sup> has attempted to describe certain prodromal symptoms of angina pectoris, and has followed cases for periods of months to two years later after such prodromal symptoms presented themselves; and these he describes as the fore-runners of angina. These prodromal symptoms are darkness before the eyes, falling sensations, loss of consciousness, sudden weakness, faintness, burning over the manubrium. However, all of these things may occur in various individuals with very slight derangement to the circulatory system; and, certainly, they would appear to be no more prodromal of angina pectoris than of any myocardial disease.

The pain in angina is lancinating in character, usually on the left side of the chest above the sternum, or over the xiphoid. It may begin deep in the chest, as substernal; it radiates up to the arm and shoulder, and down the left arm on the inside to the elbow or wrist, and to the ring and little fingers. Sometimes it begins in the front and goes through the chest with burning sensation to the back, or up to the shoulder and down the arm; or, at times, it seems to occupy the whole chest and to radiate down both arms. The pain may go up into the neck, throat, under the jaws and extend to the area behind the ears, and even radiate into the jaws or to the top of the head. Occasionally, the pain is only localized in the wrist; or it may remain as an intense

pain in the chest and not radiate into the arm. In some patients the pain radiates down into the epigastric region; or, beginning in the back, radiating forward into the intercostal nerves. In a case of total inversion of the viscera with angina, pain radiated to the right side.

The pain of angina pectoris is definitely related to exertion, to the intake of food and to mental excitement. The duration of pain may be for a few minutes, or it may last for days as a status anginosus.

At the end of an attack of angina, there may be soreness in the left thorax so severe that it is impossible to percuss the border of the heart. Hyperesthesia may become troublesome. Sometimes there is unilateral sweating, or a profuse flow of saliva; very often following an attack, or late in an attack of angina, the patient passes a large quantity of pale urine. Numbness may be complained of in the hand or wrist, or inner side of the arm; there may be numbness of the lips; together with dryness of the roof of the mouth. Sometimes the patient will break into a profuse perspiration. A good many times there is considerable fulness of the stomach with belching of gas or the attempt at belching. Occasionally vomiting occurs. Very often a sense of constriction of the chest or under the sternum is complained of more than the pain.

Dyspnea is not a part of the characteristic features of angina, that is to say, during the attack of pain the patient does not labor for breath. A little later in the attack he may have edema of the lungs and expectorate salmon-colored sputum. In a great many cases the pulse remains normal and the heart does not quicken its rate. Sometimes in the most intense attacks, the heart beats quietly until just before death when it suddenly becomes arrhythmic.

Swelling of the hands has been described by patients, but is a subjective sensation rather than a true edema. Frequently a diffuse redness of the hands and forearms accompanies the attack. Cases have been described in which the redness invaded the chest and face. Not all patients assume a characteristic pose during the attack. Some prefer standing; others remain as they were when the attack started. Some patients complain bitterly on being required to lie down during the attack. This may occur at the very beginning of the



attack, or at any time later. Sometimes the first attack kills the patient; at other times he lives for months or years; and he may die by syncope at the height of pain, or during recrudescence, following a period of relief. Death may be painless after repeated agonizing attacks. They usually succumb without a cry. The effort the patient makes to prevent the attacks of pain are rarely successful. It seems that the more often they have attacks of pain the more susceptible they become. Usually a patient with this condition sleeps quietly, and may be troubled at times with disturbing dreams.

Angina pectoris is the one disease that is diagnosed most accurately from the symptomatology it presents.

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## THE DIAGNOSIS OF ANGINA PECTORIS.\*

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Unlike most diseases, angina pectoris does not respond to any of the ordinary diagnostic procedures. Clinical laboratory, X-ray, elec-

trocardiographic and auscultatory methods are indefinite if not entirely useless in its diagnosis. It is essentially a condition whose recognition rests on a group of symptoms, mostly subjective, rather than on any of our instruments and methods of accuracy and precision.

A consideration of the morbid anatomy is of interest. There are no characteristic gross or microscopic changes except atheromatous patches in the aorta. The relation of these patches to the disease is not clearly understood. The location of pain is usually limited to the region supplied by those segments of the spinal cord which receive impulses from the heart—third cervical to third dorsal—although it is sometimes noted elsewhere.

The cause is probably based on some functional disturbance. Numerous theories have been advanced, but that of Reid seems to the writer to explain it better than any other; ordinarily during exercise, there is a dilatation of the peripheral vessels, thus drawing the blood away from the heart. According to Reid, angina pectoris may be due to failure of the peripheral vessels to dilate, thus causing a sudden rise of pressure in the first part of the aorta and the left ventricle. This would also explain the beneficial action of the nitrites.

Certain general observations may be made regarding angina pectoris. It occurs very much more frequently in men than in women; in white than in colored persons; and in elderly persons. It is rapidly increasing. (cf. Tables 1, 2 and 3.)

TABLE 1.

Death Rate from Angina Pectoris in Virginia per 100,000.

Year	White	Colored	Total
1923-----	11.24	6.16	9.34
1924-----	11.03	8.00	10.14
1925-----	11.96	8.56	10.94
1926-----	12.64	8.88	11.51
1927-----	13.78	11.13	13.04

TABLE 2.

Deaths Due to Angina Pectoris.  
(Metropolitan Life Insurance Co.)

Year	Per cent
1916 -----	3.60
Prior to 1927 -----	2.95
1927 -----	5.80

TABLE 3.

Death Rate per 100,000 from Angina Pectoris.  
(Metropolitan Life Insurance Co.)

Age	1923	1924	1925	1926	1927
35-44	5.0	5.7	5.8	7.4	6.7
45-54	14.5	13.5	16.2	20.7	20.6
55-64	32.6	31.7	38.8	47.0	52.3
65-74	71.0	70.1	74.2	96.0	95.8
75 & over	94.2	89.5	152.6	152.8	118.4

\*Read as a part of the Symposium on Angina Pectoris, before the Southwestern Virginia Medical Society, at Pulaski, Va., March 25-26, 1929.

Pain is excruciatingly severe, vise-like in type. The patient has a feeling of oppression and of impending disaster. The attack is usually transient, generally terminating spontaneously in death or recovery within an hour, if cycles of suffering can be reckoned by the clock. The pain is usually relieved by the vasodilators. The pain is usually described as being most severe in the substernal region, radiating to the left shoulder and down the left arm; it may, however, be noted elsewhere, particularly in the epigastrium and sometimes even in the lower abdomen. The diagnosis between angina pectoris and disease of the abdominal viscera is based on the fact that in angina pectoris, abdominal in type, there is no marked alteration in the blood count and no localized point of tenderness and rigidity—just general pain. The psychic symptoms of anxiety and fear are usually much greater than in abdominal disease.

It is important to differentiate angina pectoris from coronary occlusion. In coronary occlusion the pain is not relieved by nitrites, is of longer duration, often lasting for hours or days, and is accompanied by shock and slight leucocytosis.

*To summarize:* Angina pectoris is a symptom-complex based on clinical rather than on anatomical or physiological findings. The symptoms may vary considerably according to the stoicism of the individual and the part of the body to which the pain is referred, but the pain is almost invariably accompanied by a characteristic feeling of tremendous apprehension and approaching death, and is always serious.

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## THE TREATMENT OF ANGINA PECTORIS.\*

JOHN W. PRESTON, M. D., Roanoke, Va.

A discussion of the treatment of angina pectoris must of necessity be based upon one's conception of the entity of the disease. The literal meaning of the term as applied by Heberden "Strangling in the chest," perhaps cannot be improved upon if one insist that it be applied only to the typical paroxysmal type of angina; for the paroxysmal type is a veritable epileptic like storm, sweeping over the organs of circulation, centering in the

chest and distributed to the lower cervical and upper dorsal nerves.

As a means to the end of a practical discussion of treatment, the modern definition of "Pain or equivalent discomfort in certain nerve distributions supposedly originating in the heart or aorta,"<sup>1</sup> will here be accepted. Likewise will we accept in substance Mackenzie's working hypothesis that cardiac pain is an outcry of a heart muscle whose blood supply is not equal to the demand; the inadequate supply being due to either disease, or functional or exhaustion, or both; an outcry exactly similar to that of any other muscle driven to near the limit of its capacity to work, producing a syndrome not inaptly compared by Osler to that of intermittent claudication.

A word as to the prophylaxis of this symptom-complex which each year is now growing more prevalent. Granting that an individual before birth might shape his own destiny and make a choice, then; after selecting, as his ancestors, those whose building material afforded best quality of tubing for his organs of circulation, he should choose to be a woman and not a man, for comparatively few women die of angina pectoris. He should choose to be mediocre, and not intellectual, for it is rare that an unintelligent individual is affected. He should choose to live in the country and not in the city, for it is far more prevalent among city dwellers. He should choose not to have syphilis, for practically all under forty years of age who suffer from the true paroxysmal type are said to be thus infected. He should choose not to be a physician, for one out of every twenty of our profession dies of the disease.

It can in truth be said that in no other disorder is it more important to treat the patient rather than the disease; and likewise, in planning treatment, to determine in so far as one may, whether the patient affected have cardiac pathology, or whether the heart be comparatively normal, but exhausted, from such various causes as obesity, toxæmia, anaemia, physical or mental strain, overwork, or loss of sleep; likewise, whether or not the endocrines are at fault.

In approaching directly the treatment of the severer types of the disease, what of drugs? All are agreed that those who have once had an attack should always carry pearls of amyl nitrite, to be crushed and inhaled, or, what

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\*Read as part of Symposium on Angina Pectoris, before the meeting of the Southwestern Virginia Medical Society, at Pulaski, Va., March 25-26, 1929.



others hold to be almost equally potent, tablets of nitroglycerine, not to be swallowed, but to be allowed to dissolve under the tongue. Next in order comes the drug which of all has the field of greatest usefulness in treatment of pain, morphine; but in what dosage? I know of no condition in which there is a greater temptation to give large doses of morphine in quick succession than in angina pectoris. This is particularly true in that the call to the patient is always hurried and too often no other anodyne is at hand to alleviate the suffering approximating the limit of endurance. Allbutt insists that a full dosage of atropine be given with morphine, upon the theory that the vagus is an important factor in the mechanism of the paroxysm.

Indelibly burned into my memory is the picture of the first individual whom it was my misfortune to lose with the disease—a lawyer of considerable prominence and influence in his community, but of convivial habits, who lived well but not wisely, and whom I had treated through other attacks. His suffering was so intense it seemed necessary to give him in succession three doses of a quarter grain each of morphine, and when finally relieved he was accompanied home and left in bed apparently recovered. Responding to a hurried call later he was found cyanotic and dying. The morphine probably was not responsible for the death, for indeed I am not now so sure that it may not have been a case of coronary occlusion, the diagnosis of which catastrophe then lay in the realms of the future, but the experience was not conducive to sound sleep upon my part the night following.

What of chloroform? While it is tabooed in practically all other heart conditions, it has the sanction of good authority in angina, and in the light of the above experience my own feeling is that after the use of a half grain of morphine without relief, chloroform carefully administered in small quantities is a real boon while waiting the full effect of morphine, and that it should be given without hesitation.

Following an attack of severe angina it must of necessity be decided whether it be advisable to put a patient to bed for the period of from four to six weeks, as is advocated by some. Allbutt in particular has stressed the advantages of a prolonged rest in bed, in the open air by preference, after the manner of

the treatment of tubercular patients. In favor of this plan of treatment is the fact that it gives the physician an opportunity to study his patient carefully, and to inculcate in him the importance of a proper adjustment of his life so as to minimize cardiac strain in such cases as show definite pathology. It should, however, be borne in mind that old people do not do well as a rule if kept in bed over long periods. At once in this connection the question also arises as to whether the heart be compensated or not, and further what the effect of confinement will be upon the spirits and morale of the individual affected. Every observant practitioner knows full well how greatly the threshold of pain varies in different patients, and too, how greatly it varies from time to time in the same individual, which means, as Mackenzie has said,<sup>2</sup> "That the severity of the pain is no guide to the gravity of the lesion, and that the treatment directed to the nervous system may be of far more benefit than that directed to the cardiac lesion."

What of the treatment of the milder attacks and between the paroxysms of the severe attacks? Likewise, what are the best sedatives tending to lessen the discomfort, and to make the period of confinement, if the patient be restricted to the house or bed, less irksome? The value of good nursing, massage, and a diet best suited to the individual goes without saying. As to drugs, it is doubtful if Mackenzie's routine of bromides, 10 to 30 grains, with or without chloral, 3 to 6 grains, given at regular sufficiently frequent intervals to produce slight drowsiness, if necessary, four to eight hour intervals, can be improved upon. Less objectionable to most patients, certainly than that of the bromide of ammonia, which was Mackenzie's favorite, is the use of adalin, 3 to 5 grains, with or without luminal in one-eighth to one-quarter grain doses, given three times daily, fortified at bedtime if need be by trional, a favorite of Meara, in from 5 to 15 grain doses, or by small doses, gr. 1½ to gr. 3 of the newer barbitol derivatives, such as neonal, amytal or dial, to which codeine may be added if necessary.

I have the impression that the good effect of the bromides is in no small degree due to their action as a mental and nerve sedative and would therefore caution against the protracted use of large doses, as well as against

the use of large doses of barbital derivatives on account of their depressing effect on the circulation and particularly on the spirits. To the contrary, I have seen nothing but good results from the long continued use of small dosages of from 5 to 8 grains of bromide three times daily. This I have observed to be particularly true in such cases as are complicated by hypertension.

In this connection I especially wish to call attention to what is apparently the greatest advance made in recent years in the treatment of such cases as are due to sclerosis of the coronary arteries. I refer to the experiments, clinical and laboratory, which have led to the increasing use of drugs of the xanthin group, the more important of which is theophyllen, better known as theocin, and theophyllene ethylendiamine the trade name of which is euphyllin.

Of the group, the latter, euphyllin, has proved itself the more useful, in that it is better borne by the stomach and causes less systemic disturbance. It has definitely been shown by animal experimentation that it has the property of increasing the flow of blood in the coronary arteries from 40 to 90 per cent.<sup>3</sup> If one may rely upon the flattering reports from a number of cardiac clinics in which it has now been tried out from one to three years, he must conclude that it is well worthy of consideration. There are apparently no contraindications, and it may be used over long periods, either alone or with digitalis or other similar drugs. The dosage which has been found most acceptable is one and a half to three grains, three times daily. I have not personally had an opportunity to use it in a sufficient number of cases to express a definite opinion further than to say that I believe that every patient of the arteriosclerotic class should have the benefit of a trial of the drug over a considerable period of time.

In contrast to the typical paroxysmal type of angina, which fortunately the average practitioner sees at somewhat infrequent intervals, is that borderland, mongrel type of cardiac pain, the severity of which runs the gamut from the slight discomfort of the neurotic individual, often due to purely functional causes, to that of the constant nagging, burning, substernal pain so characteristic of true coronary or aortic disease—all too often the forerunner

of the severest angina. These types are referred to by most authors in somewhat slighting terms, such as the pseudo-angina of Osler, mock or minor angina of Allbutt, secondary angina of Mackenzie; yet for the general practitioner they constitute no small part of the day's work, and, regardless of whether the origin of the pain be functional or pathological, it is nevertheless very real to the patient, and the basis of treatment, looking to permanent relief, is in many respects the same as of true angina. The intelligent practitioner need not be warned to avoid the use of the term angina in this type of case, for reasons which are obvious.

I have above referred to Mackenzie's hypothesis that heart pain is in part at least due to the work of the organ being disproportionate to its nutrition. I need not remind you that the heart is the hardest worked muscle in the body, and that its work continues both night and day, and further that its own blood supply is dependent upon its own labor. Neither is it necessary that I remind you that the heart's nutrition suffers in proportion to the character of blood supplied. Manifestly, therefore, the innumerable things which may tend to vitiate the blood stream, such as focal infections, the poison of tobacco, anaemia, and various systemic diseases of all sorts, should be diligently sought out and removed, with the proviso always that due consideration be given to the shock incident to the removal of focal infections in such patients.

By way of parenthesis, may I not state that there are three sources of crippling of the heart which it seems to me deserve more attention than is usually given them; the focal infection of pyorrhoea, which somehow seems markedly to affect the heart muscle; the strain of grief and domestic worries; the wearing effect of hypertension and consequent need of digitalis in many cases; and too may I not add as a fourth, an often overlooked gall-bladder infection. For, if I remember correctly, it was Riesman who some years ago called attention to the frequency of involvement of the heart muscle in patients having gall-stones. Willius tends to corroborate this observation by his review of proven coronary cases at the Mayo Clinic, in which he states that 26 per cent showed cholecystitis, with or without stones; possibly a coincidence, but doubtless worthy of note.



Of prime importance also is the necessity of a healthy nerve supply, as a driving force to the heart, thereby maintaining a steady normal rhythm, upon which the heart is directly dependent for a constant blood supply. Closely related to this also is the importance of properly regulated exercise for convalescents, and particularly for the large class of patients in whom definite pathology is not evident. It is my observation that proper exercise and recreation for many of this class will work wonders when all medicines fail.

As related to the nutrition of the heart muscle I have under observation at this time two patients in point: the one a woman of asthenic build who on account of a digestive disturbance was advised that her diet must be sharply restricted. She worried much, became emaciated and developed paroxysmal heart pains, which were diagnosed angina. She has been relieved by reassurance, a nutritious diet, and a gradual resumption of a normal routine of life. The other patient is a man of like asthenic build who on account of a moderate elevation of blood pressure was dieted strictly and allowed little or no meat for a year. He too grew emaciated and weak, became alarmed about himself, and developed attacks of cardiac pain which likewise were diagnosed angina, which diagnosis worried him greatly. He too has been similarly relieved by a balanced diet, reassurance and a gradual resumption of his normal activities.

This brings me to one further consideration of what I believe to be of extreme importance in handling patients subject to cardiac pain, and I am done. I refer to the mental attitude of the physician himself as relates to such patients, and his capacity, after having worked and thought out the various angles of the individual case, to reassure the patient in so far as circumstances will permit, and to inspire him with hope, and a willingness "to live on a lower level," if need be, and to adapt himself to such a routine as will enable him to carry on within the limits of his strength and capacity. For those whose hearts are definitely diseased, many of whom are unduly alarmed, as well as for the not inconsiderable number of neurotics whose minds are centered upon their hearts, an intelligent painstaking examination and a frank talk at times works wonders—psychology, if you will, but an exer-

cise of art second to none in the practice of medicine.

A summary of the remedial measures here considered, in their order of merit, would seem to be about as follows:

1. For relief of fulminating attacks of angina, amyl nitrite, nitroglycerine, morphine, and chloroform.
2. For minor attacks, and discomfort between attacks, bromides supplemented, if need be, by chloral, codeine, luminal, and other barbitatal derivatives.
3. As curative measures between attacks, the elimination of tobacco and other poisons, particularly the judicious handling of focal infections, and proper care of the heart and of complicating disorders, functional and pathological.
4. The study of the individual patient as relates to his nervous system, morale, and readjustment of habits of life.
5. A proper trial of the xanthin group of drugs, particularly emphyllin and theocin in arteriosclerotic cases.

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- Shenandoah Life Building.*

### THE SURGICAL TREATMENT OF ANGINA PECTORIS.\*

By D. S. DIVERS, M. D., Pulaski, Va.

In my part in this symposium, I will endeavor to give you the opinion of some of the best men who are thoroughly studying the results, both good and bad, in this most distressing condition.

The surgeon in doing this operation does not hope to cure the patient of a disease of which the etiology is not known, but is trying to relieve him of the agonizing pain that is most unbearable and will ultimately end in death. The attempt at the alleviation of this pain is accomplished by the interruption of the afferent or sensory nervous supply to the heart.

Jonnesco, a Roumanian surgeon, in 1916 succeeded in relieving the pain in a case of angina pectoris by removal of the superior,

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middle and inferior cervical ganglia. This operative procedure had been carried out by him before this time for hyperthyroidism, epilepsy, and glaucoma. Since Jonnesco's adventure in 1916, numerous modifications of this operation have been done.

The following are some of the operations that are advocated by some of the men who appear to be most interested and are studying these cases: the removal of the superior ganglion on the left side; the removal of the cervical ganglion along with the stellate ganglion on one or both sides; by cutting the rami-communicantes which go to the stellate ganglion, cervical trunk above this ganglion, the vertebral nerve and the depressor nerve if present, leaving the ganglia intact. Some are also advocating paravertebral injections of alcohol and novocain. All are claiming good results in a good number of their cases.

The operation is usually carried out on the side in which the pain predominates. Should relief not be obtained, some men advocate the same procedure on the opposite side.

All the sensory impulses coming from the heart and aorta are through the sympathetic nervous system and the afferent fibers of the vagi. From the literature available today, there seems to be a difference of opinion as to the anatomy and physiology of the autonomic nervous system supplying the heart and aorta. The sensory or afferent impulses are supposed to be transmitted from the autonomic nervous system to the cord by the way of the white rami-communicantes. The white rami<sup>1</sup> do not exist in the cervical sympathetic system, only the gray rami, but do exist from the first thoracic to the first lumbar inclusive.

Langley<sup>2</sup> and Ransom,<sup>3</sup> both have shown that the cervical sympathetic nervous system does not contain sensory fibers, but is entirely motor. The stellate ganglion, on the contrary, contains numerous sensory fibers as well as motor. Cutler<sup>4</sup> believes that any sensory fibers reaching the cord from the cervical sympathetic system must come through the middle and inferior cardiac nerves by the way of the corresponding ganglia through the stellate ganglion. Langley has also stated there are sensory fibers connecting the vagus with the superior cervical ganglion. LeRiche and Fontaine,<sup>5</sup> state they "have frequently stimulated the cervical sympathetic electrically in human beings, and so produced pain with a very sharp

and limited topography." In the cases in which this was done they state the vagus connections were not interrupted, but the connections with the thoracic sympathetic were divided, showing, according to Langley, that there must be a sensory connection from the vagus to the superior cervical ganglion.

According to the present knowledge available concerning the afferent nerve supply to the heart, one would think all the sensory impulses coming from the heart and aorta to the cord must pass through the stellate ganglion or through the superior cervical ganglion to the sensory fibers of the vagus. From this description it appears a very simple task to relieve a patient from the pain of angina pectoris.

As I have said before, there have been many modifications of Jonnesco's operation. All have given some good results. All have interrupted some of the sensory fibers from the heart and aorta, but none have interrupted all of them, proving that removal of some of the sensory paths will in some cases, where the stimulus is not so great, give relief.

When angina pectoris was placed in the column with other conditions that are relieved by surgery, like many other diseases, it was received favorably by some and condemned by others. Such men as Brown, Coffee, Cutler, LeRiche, Fontaine and many others have proven beyond a doubt that this operation is justifiable in cases of true angina pectoris which have been properly studied by a competent internist.

Cutler collected fifty cases that had been carefully studied before coming to operation with follow up records for six months. In these cases good results were obtained in 54 per cent: improved 16 per cent, no relief 14 per cent, and 8 per cent were questionable. Hesse, after reviewing 135 operations, concludes favorable results are obtainable in 65 per cent, unsatisfactory results in 17 per cent, with a mortality of 13 per cent.

LeRiche and Fontaine believe severe pain occurs in the cervico-facial region in about 25 per cent of the cases following removal of the ganglia. Hyper- and hypoesthesia were present in a good number and also muscular atrophies. Jonnesco<sup>6</sup> since 1896 has removed the cervical ganglia on both sides in 200 cases. Examinations ranging from five to twenty-



four years afterwards have never revealed the slightest unfavorable influence on the heart.

We have in the past been unable to give our patients any encouragement from relief of pain, but now I believe we can safely say to some of them that their chances are 50 per cent to be relieved by surgery. When we can obtain good results in 54 per cent to 65 per cent with a mortality of 8 per cent to 13 per cent. I think we are justified in giving some of them this advice.

Some of the workers advocate early operative treatment in these cases before they become too advanced and too severe, and while the heart can be considered sound. Others advise operation only after all medical remedies have failed, but they all agree, I believe, that no case of angina pectoris with a decompensating heart should be treated by cervical sympathectomy. The decompensating cases can obtain some relief with paravertebral injections of alcohol and novocain.

Both local and general anaesthesia have been used, the local anaesthesia appearing to have the preference. The operative technique has been omitted as it can be found in any modern text book on surgery.

From reviewing the literature one receives the following impressions on the present status of the surgical treatment of angina pectoris:

1. There is no one definite operative procedure that meets the consensus of opinion of the men who are doing most of this work.

2. Every case should be carefully studied by a competent internist before coming to operation. There are a great number of cases that have received a cervical sympathectomy for angina pectoris who had a coronary thrombosis or some other heart condition. These cases did not obtain relief from pain.

3. Cases with decompensating heart should not be subjected to operation, but may be treated by paravertebral injections of alcohol and novocain.

4. Favorable results from relief of pain can be obtained in 50 per cent to 60 per cent of cases in true angina pectoris.

5. The surgical treatment of angina is now in its incipency and the treatment should be in the hands of surgeons doing neuro-surgery.

In closing, I do not believe I can impress on you the present status of the surgical treatment of angina pectoris any better than to quote Dr. Frank C. Mann, about the distri-

bution and course of the sympathetic nerves. He says: "I would hesitate very much to predict the course of any particular fibers of the sympathetic nervous system in any animal that I had not studied or that had not been studied by a competent observer, and, so far, we know very little as to the course of these fibers in the human being. The patient should be told that the operation is an experiment. The results should be carefully recorded in all cases, in order that we might know more about the physiologic effect of these nerves."

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### FIBROUS OBSTRUCTION OF THE BLADDER ORIFICE.

By A. I. DODSON, M. D., Richmond, Va.

From the Department of Urology, St. Elizabeth's Hospital.

Fibrous obstruction of the vesicle orifice gives rise to a clinical syndrome identical with that resulting from hypertrophy of the prostate. The onset of the symptoms is insidious, at first a slight frequency and burning, to be followed gradually by difficulty in starting the stream and a sensation as though urination has not been complete. Untreated, the condition slowly progresses to complete obstruction with the same devastating effects upon the upper urinary system that are found in advanced cases of prostatic enlargement.

On palpation, the prostate may be normal in size, or contracted and indurated, depending upon the degree of its involvement in the fibrous process. The size of the gland may prove an obstacle in diagnosis to those unacquainted with the possibilities of fibrous contraction as the cause of a bladder obstruction. The diagnosis is made with the cystoscope. As the instrument passes into the bladder, it does not ride over a mound as is the case in pros-

tatic hypertrophy, but fits very tightly at the bladder orifice and there is often a sensation as though the instrument is being grasped. A varying degree of residual urine is encountered, according to the duration of the disease. The bladder mucosa is congested, and the walls of the bladder trabeculated. Frequently, there are minute saccules in the bladder wall, and at times definite diverticula are encountered. The trigone is usually thickened, the inter-ureteric ridge standing out prominently. In fact, at times, the trigone is so much hypertrophied as to become a part of the obstructing process. The bladder sphincter area is definitely thickened, and its mobility is impaired. (Fig. 1.)



Fig. 1.—Longitudinal section through a portion of the bladder and prostatic area showing a thickening of the trigone, muscle, and the tissues about the bladder orifice.

As the instrument is drawn back into the posterior urethra, a definite barrier of tissue prevents a view of the trigone. (Fig. 2.) The obstruction is quite circular, except when the fibrous tissue is present in greater abundance on one aspect. This is seen when the fibrosis is confined chiefly to the prostatic area and known as median bar. Occasionally, the condition is complicated by a slight degree of prostatic hypertrophy, usually appearing as little nodules about the bladder orifice giving it an irregular appearance. When prostatic hypertrophy is advanced, it may obscure the picture and such cases at times continue to have obstruction, after the prostate has been removed, requiring further treatment. This type of obstruction is the result of chronic inflammation of the bladder, prostate, and posterior urethra. In cases of long standing in-

flammation of these structures, deposits of fibrous tissue are laid down in the submucosa and muscularis, and as the process advances, contraction of the fibrous tissue takes place interfering with the muscular action and narrowing the orifices of the bladder.

Under the title "A New Procedure (Punch Operation) for Small Prostatic Bars and Contractures of the Prostatic Orifice," Young, of Baltimore, in 1913 presented the first rational method of dealing with this process. The method, in principle, had been described years ago by Mercier. Mercier's instrument was introduced in 1839, many years before the perfection of the cystoscope, and the failure of his method was probably largely due to an improper selection of cases.

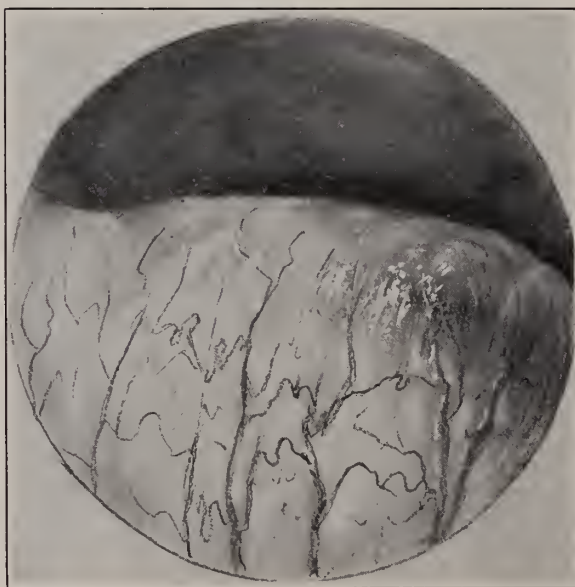


Fig. 2.—Cystoscopic view of a fibrous obstruction or median bar formation in the neck of the bladder. This observation was made with the cystoscope pulled back in the posterior urethra, showing the barrier of tissue between the posterior urethra and the bladder.

More recently, Caulk has introduced a modification of Young's punch in which a cautery blade takes the place of the cutting edge of the inner sheath of Young's instrument. The advantage of Caulk's instrument is the satisfactory control of hemorrhage.

Other methods have been introduced by Chetwood, Bugbee and others, but until recently Young's punch, or some modification of this, has stood out as the method of choice.

C. W. Collings in *The Journal of the American Medical Association* of February 11, 1928, reported fifty-one patients having been re-



lieved from bladder neck obstruction by cutting with high frequency current in the form of the electrotone, a special high frequency apparatus devised by him. The apparatus is similar to the old spark gap machine, but the rate of high frequency oscillation is stepped up, producing a cutting current. Collings uses a McCarthy cystoscope or a modification of the same and an especially devised knife electrode. (Fig. 3.) Since the current cuts in-

bladder. I have used the knife electrode devised by Collings, but have secured the current from an Engeln diatherm apparatus, using the surgical knife attachment. There have been no deaths or serious complications in these cases. The youngest patient in this group was forty-five years of age, and the oldest was seventy-three years of age. The average age was sixty-six and one-tenth years. With the exception of two patients, one of

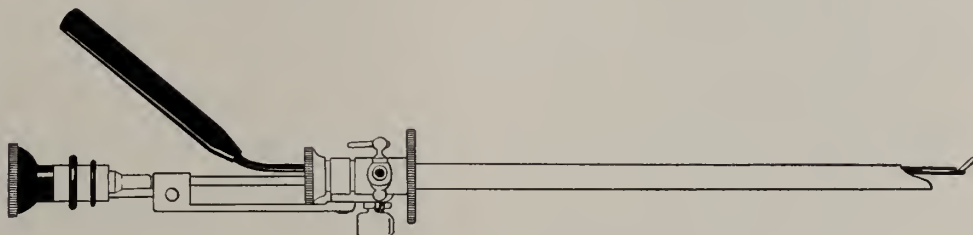


Fig. 3.—A sketch of the Collings electrode inserted through the McCarthy cystoscope.

stead of cauterizing, thick sloughs or secondary hemorrhage are eliminated. (Figs. 4, 5, and 6.) Primary bleeding is insignificant, and he considers the procedure a more or less minor one, giving relief to cases of purely

whom entered the hospital with complete retention and uremia and the other developed a very severe epididymitis, the average hospital stay was a little less than a week. The amount of residual urine varied from two ounces to



Fig. 4.—Same observation as Fig. 2, showing an incision by the cautery knife. After the first incision is made down to the level of the base of the bladder and posterior urethra, as much tissue is shaved off from the margin as is deemed necessary to give satisfactory drainage.

fibrous obstruction with minimum hospitalization and apparently without grave complications.

I have used the Collings method in thirteen cases of fibrous obstruction of the neck of the



Fig. 5.—Same observation as Fig. 2 and Fig. 4 after the operation has been completed. It may be noted that the posterior urethra and trigone are practically on the same level.

complete retention with an average of about eight ounces. In ten patients, the residual was completely relieved, and the patient was symptomatically cured after one operation. One patient who came to the hospital with complete residual had this residual reduced to

two ounces after the first operation, and was completely relieved after the second. Another patient has been treated too recently to determine the final results. Another who entered with complete retention left the hospital after two weeks with four ounces of residual, and he will return for further treatment.

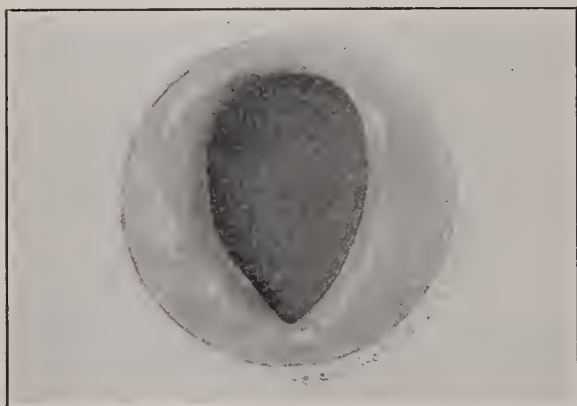


Fig. 6.—Cystoscopic view of the bladder orifice made about one year following Collings electrode excision of the obstructing tissue in a case of fibrous obstruction of the neck of the bladder.

My experience with this procedure convinces me that it is the simplest and safest means of dealing with this disease. A very large portion of obstructions of the bladder neck is of this type, and frequently even when it is complicated by minute prostatic nodules, it can be relieved by this simple procedure with the hospitalization of about a week and with practically no mortality.

617 West Grace Street.

## TECHNIC OF GALL-BLADDER SURGERY —PRE-OPERATIVE, OPERATIVE, AND POST-OPERATIVE.\*

By O. T. AMORY, M. D., F. A. C. S., Newport News, Va.

The technic of gall-bladder surgery in general will be determined by the type of case one has under consideration, as, for instance, chronic cholecystitis with, or without, stones; acute cholecystitis with, or without stones; sub-acute cholecystitis with, or without stones; obstruction by stones, or otherwise, producing sepsis and jaundice. As a general rule, one is safe in removing the gall-bladder except in those cases of acute involvement with jaundice, ascending cholangitis, and especially those cases with enlargement of the head of the pancreas. These cases usually should be drained.

### PRE-OPERATIVE TECHNIC

It is generally agreed in the chronic cases, especially with stones, that they should be operative as soon as the correct diagnosis has been made, and the patient should be given the usual preliminary treatment. Otherwise, in the acute cases with infection it is better to tide the patient over until the acute condition subsides, which occurs with the majority of cases under proper pre-operative care.

This treatment usually consists of keeping the patient in bed with sufficient morphine to keep them at ease, with forcing of fluids through every avenue, under digitalis and general supportive therapy, until the acute symptoms subside, which condition is determined by the general involvement of the patient, subsidence of temperature, reduction in the blood count, with a corresponding reduction of the polys and so forth.

Judd advises diathermy, both pre-operative and post-operative. Personally, I have had no experience with this, but realize its advantages.

Jaundice should be combated by transfusions, glucose and soda, calcium, various haemostatic serums, with forced fluids, and general supportive treatment. Special attention should be given these cases from a mental and nervous standpoint, as there is usually a mental symptom-complex manifested by depression and melancholia, with instances bordering on various forms of mania.

### OPERATIVE TECHNIC

Regardless of one's skill, dexterity, and efficient technic, it is impossible for one to overcome proper position, exposure, and vision. Therefore, the patient should be properly placed on the table, with pads under the back at its costal margin, the feet slightly elevated, and so forth. The incision should be of sufficient length for proper exposure with a proper lighting system. The Cameron lights are excellent in gall-bladder work, especially in searching for stones, for differentiating stones from enlarged glands, and so forth.

There are various incisions recommended, but they are more or less of individual choice. The past year has given very little new in gall-bladder surgery, though volumes have been written on gall-bladder disease. There has been one important thing which has been stressed, and that is anomalies of the gall-bladder tract. All kinds of variations have

\*Read before the Surgical Service of Riverside Hospital.



been reported, both acquired and congenital, varying from complete absence of the gall-bladder to slight abnormalities of the ducts. This fact should be constantly in the minds of surgeons doing gall-bladder work. Often the little details of one's work determine whether the patient will be relieved by operation of the symptoms complained of or not. One of these details is the proper placement of packs around the operative field before one attempts much manipulation. Frequently, on separating adhesions or other manipulations, one opens up a pocket of pus, gets into a fistula, or may even rupture the gut or gall-bladder proper. So, if the field is properly protected, the minimum amount of danger will be done.

Whittaker, of Rochester, N. Y., and others, recommend the enucleation of the gall-bladder, which has its advantages in certain types of work.

It is a consensus of opinion among the profession that in cases of acute infection with suppuration, one should do a decompression for temporary relief, with a removal of the gall-bladder at a later date. Most of these cases have to be removed later, as the gall-bladder does not function after drainage in about 90 per cent of the cases.

Judd states that 80 per cent of gall-bladder removals should not be drained. In Judd's hands this percentage of cases is usually safe, but it is the author's opinion at the present time that this is a rather dangerous teaching for the average surgeon operating under the average surgical conditions, although admitting that one can frequently leave out drainage more freely than we do. I am unwilling at present to follow the teaching of the ideal cholecystostomy in full.

Judd gives as a definite indication for drainage: (1) Infection, (2) Jaundice, (3) Bleeding.

The control of hemorrhage is absolutely essential, and, with proper exposure and proper vision, one is able to clamp the tissues properly before severing them. I am convinced that there are more operative and post-operative complications caused by the trauma produced to the ducts, tissues, and so forth, in an effort to control hemorrhage than there are produced by the disease itself. I always make it a practice to doubly ligate securely all ducts and vessels, making sure the operative field is entirely dry before leaving it.

As to anesthetic, this is a matter of individual choice. In the aged, poorly nourished, and generally bad risk cases, local anesthesia alone, or local combined with ethylene or gas oxygen are the procedures of choice. Local alone has been very satisfactory in our hands. The author has had no experience with spinal or rectal anesthesia in these cases. If possible, one should avoid ether and chloroform in this type of case.

One should search diligently for stones in all gall-bladder work. The following sites should be explored, as stones are found in these areas:

1. Intra-hepatic ducts.
2. Extra-hepatic ducts.
3. Gastro-intestinal tract.
4. Peritoneal cavity.
5. Gall-bladder.

It must be borne in mind that enlarged and especially calcified glands may be very misleading for stones.

In cases of questionable removal of the gall-bladder, one may remove the gall-bladder and insert a drain in the common duct.

#### POST-OPERATIVE TECHNIC

In the aged, one should get these patients out of bed as quickly as possible. They should be dressed daily to protect the skin; see that tubes drain properly, forcing fluids and the average drain should be removed in five or six days.

Cases of biliary fistula usually mean that stones have been overlooked or some damage has been done to the ducts. In cases of gall-bladder disease, if correctly diagnosed, with proper pre-operative, careful operative, and efficient post-operative care, one should expect good results of gall-bladder surgery.

#### THE PREVENTION OF SYPHILIS IN VIRGINIA.\*

By C. B. RANSONE, M. D., Roanoke, Va.  
Health Officer of Roanoke and President Virginia Public Health Association.

In speaking of the unpleasantness between the states, one of our southern writers very beautifully said: "The early spring of 1861 brought to bloom, besides innumerable violets and jassamines a strange and enormous flower—a flower whose shadow chilled a people; whose odor strangled a nation; whose petals drooped downward and whose roots were in

\*Presidential address at annual meeting of the Virginia Public Health Association, at Richmond, Va., February 20, 1929.

hell. This was the blood-red flower of war." In the early summer of 1914, in a fertile and carefully prepared soil, this same flower sprang up in Central Europe and by the spring of 1917, its chilling shadow had gradually spread to the shores of our own continent. The struggle was on to make "the world safe for democracy." This shadow has lifted and under a clear sky we are now able to take stock of the things accomplished. When we observe the position which this nation occupies in the eyes of the world by reason of its failure to become a member of the League of Nations; because of the jealousy and animosity of the dominant party; when we hear in the distance the rumblings of inevitable war in many places and as we smile at the most recent camouflage of this party—the so-called Kellogg Peace Pact, we are tempted to wonder whether all the suffering and sacrifice and sorrow of this conflict was not in vain, and whether or not the world has in reality been made any safer for democracy.

But be that as it may, the fact remains that, as a direct result of this war, at least one great benefit has come to mankind. Perhaps, the greatest good to accrue from this terrible struggle was the tremendous impetus given the feeble efforts then being made to control venereal diseases in civil life. The splendid military program carried out during and immediately following the war taught many valuable lessons in venereal disease control. Up to this time the seriousness of the venereal problem was scarcely realized. We had only rather wild guesses on which to base opinions as to the prevalence of these diseases. The draft examinations gave a valuable cross section through the population. It will be recalled that, of the great horde of young men who presented themselves for draft examination, about 1 per cent showed evidences of syphilis. It was, of course, recognized that this 1 per cent of manifest infection represented but a small part of the actual infection that would have been revealed by Wassermann tests. Colonel Vedder's report of Wassermann surveys in various large groups of the army furnishes striking evidence of this fact. For instance, in a group of 1,577 white enlisted men of whom 3.4 per cent were known to have syphilis, he obtained 12.6 per cent positive reactions. In a group of 3,203 candidates for commissions in the regular army, 5.8 per

cent gave positive Wassermann reactions. He also obtained 5.4 per cent positive reactions among cadets at West Point who had no outward manifestations of the disease.

The nation is indeed greatly indebted to Dr. Wm. F. Snow and to his colleagues for the formation of the American Social Hygiene Association and for their effort in inducing government authorities to adopt the novel program launched against the venereal diseases during the World War. Prior to the war, the venereal diseases had been regarded by army and navy authorities as a more or less necessary concomitant of military life. After more careful consideration, however, they definitely accepted the single standard of sex morality and set themselves squarely behind the promotion of continence and clean living among men of the army and navy. For the first time in the history of the world the heads of great military organizations seriously undertook the task of diminishing the opportunities for venereal disease infection. Red light districts adjacent to camps and cantonments were broken up and infected women were placed in quarantine.

The three-fold program for the control of venereal diseases carried out by the government officials is well known to all.

The medical phase provided for treatment and prophylaxis—and punishment for those exposed who failed to use the prophylactic clinic. The vice repressive phase undertook the destruction of the red light districts—or nests of infection—the quarantine of prostitutes, and the establishment of recreational centers offering positive opportunities for wholesome physical and mental development. The educational phase stressed continence as the only sure preventive and emphasized the single standard and the duty of each man to himself, his future wife and his country to keep himself physically and morally clean.

And after the war, financial aid was received by the states through the Chamberlain-Kahn Act, which provided grants to the states on a fifty-fifty basis for the creation of State Departments of Venereal Disease Control and the maintenance of Venereal Disease Clinics. Unfortunately, the appropriations under this Act are no longer available. Our wartime enthusiasm seems to have waned and we now find ourselves on the crest of the receding wave.



In bringing this subject, "The Prevention of Syphilis in Virginia," to your attention, it is not my purpose to attempt to add anything new, but, by reviewing the subject briefly and looking facts squarely in the face it is hoped that some discussion may be provoked which may tend to revive our enthusiasm and quicken our efforts in the solution of this, the greatest public health problem confronting the people of Virginia today. And what is said of the prevention of syphilis may be applied equally as well to gonorrhea and chancroid.

In the first place, I should like to call your attention to syphilis as the greatest killer. In the State of Virginia last year, syphilis was given as the cause of death on only 296 certificates. In my own city, Roanoke, it was assigned as the cause of death in only eight (8) instances. If these certificates told the whole story, syphilis would not be such a serious problem. But, if we are to accept the opinion of many eminent authorities, syphilis is responsible for a great many deaths each year, when, for various reasons, the word syphilis is not even mentioned on the death certificate. When we add to the few deaths assigned to syphilis the deaths under other classifications that should have been ascribed to syphilis, we have quite another story. Many attempts have been made to allocate to syphilis the deaths presumably due to this disease. The greatest variation in these estimates necessarily exists since they are personal opinions. However, the composite opinion of a large group of authorities on any subject should have some significance. While no one really knows the true percentage of deaths due to syphilis, yet nearly everyone agrees that the proportion is large and even when the most conservative figures are taken as the most probable, we find that syphilis is converted from one of the minor to one of the major causes of death.

It seems that the table prepared by the American Social Hygiene Association based on the opinions of many eminent authorities, expresses quite accurately the consensus of opinion of those qualified to form opinions.

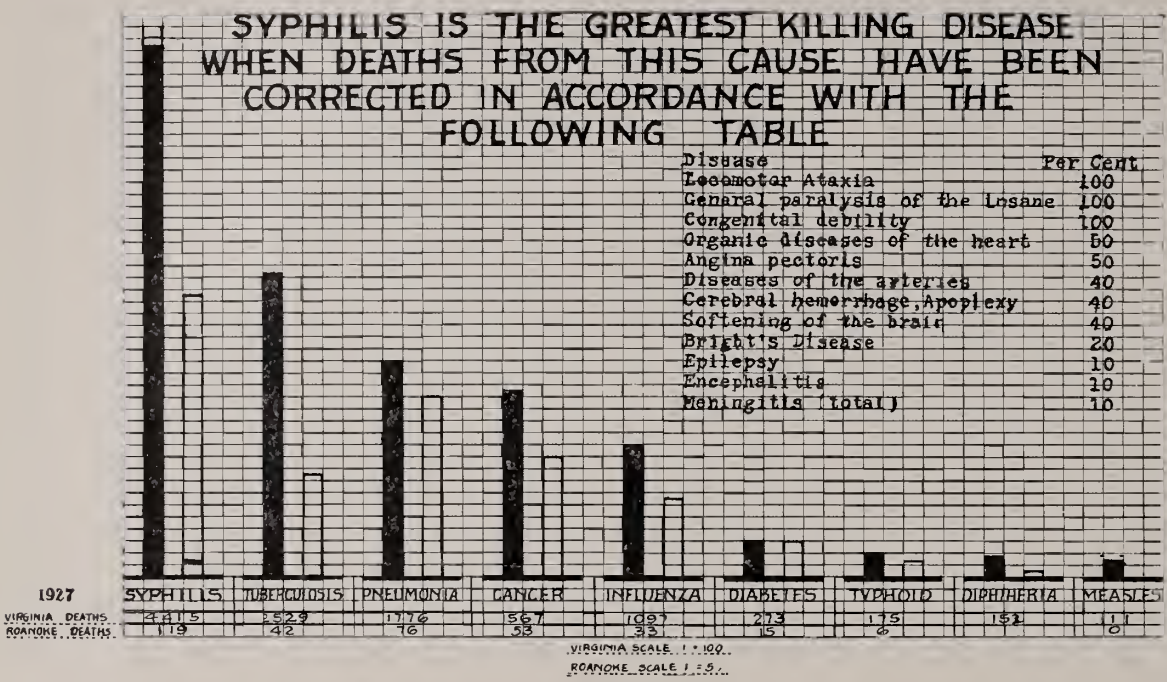
I have taken the trouble to ascertain the opinions of several of the leading clinicians in our own State as to the accuracy of the percentages in this table, when checked by their experience. As expected, there was a wide diversity of opinions on the table as a whole and as to individual items. No one thought the

percentages too low; some thought them too high—except, of course, those for locomotor ataxia, general paralysis of the insane and congenital debility. The majority thought the percentage ascribed to angina pectoris (50 per cent) a little too high, while it was the opinion of a large majority that the percentage for aneurysm should be raised from 40 per cent to 95 per cent.

It was noticeable that the clinicians whose practices embraced the larger proportions of the working classes on whom Wassermann tests had been made, were the physicians to give the higher percentages. For example, one physician, who for many years has been the chief clinician for a large industrial plant in Newport News, Va., where practically every person attending either the medical or surgical clinic is given a Wassermann test, thought none of the percentages of the table too high. Through the courtesy of the Department of Vital Statistics, we have secured the total number of deaths from the various diseases listed in this table for the State during 1927, and also the number of deaths from several diseases long considered among our greatest killing diseases. These are shown graphically in the chart together with the figures for the City of Roanoke. You will note the similarity of the figures for a rather typical city and for the State as a whole.

We are, of course, not unmindful of the probability of errors in diagnoses; nor are we, on the other hand, unmindful of the deaths from tuberculosis, pneumonia and many other diseases that would never have occurred but for the underlying, unsuspected syphilis. When we add to the deaths reported as due to syphilis the deaths under other classifications that should have been ascribed to syphilis in accordance with percentages in this table, and compare them with deaths due to these other diseases, we have a picture which is shown in the accompanying chart.

A disease that causes such a large number of deaths must of necessity be quite prevalent. In recent years many groups in the civilian population have been examined intensively through the use of the Wassermann test and many estimates of the prevalence of syphilis have been made. Here, again, it is obviously inaccurate to gauge the extent of infection in the entire population by its prevalence in any special group. However, a very fair estimate



**SYPHILIS IS THE GREATEST KILLING DISEASE**  
Proportions of Deaths Under Other Classifications That Should Be Ascribed To Syphilis

Disease	Per Cent	Number of Deaths, Roanoke, Va. 1927	Percentage due to Syphilis	Number of Deaths, Virginia, 1927	Percentage due to Syphilis
Syphilis.....	100	8	8	296	296
Locomotor ataxia.....	100	1	1	21	21
General paralysis of the insane.....	100	0	0	64	64
Congenital debility, icterus, sclerema.....	100	9	9	397	397
Angina pectoris.....	50	10	5	332	166
Organic diseases of the heart.....	50	112	56	3897	1948
Diseases of the arteries, atheroma, aneurysm ...	40	19	7	326	130
Cerebral hemorrhage, apoplexy.....	40	54	22	2056	822
Softening of the brain.....	40	0	0	22	9
Bright's Disease.....	20	49	10	2722	544
Epilepsy.....	10	1	0	61	6
Encephalitis.....	10	3	0	34	3
Meningitis (all).....	10	9	1	95	9
Total deaths due to Syphilis.....			119		4415

1927 Deaths in Virginia—All Causes—28,772.  
1927 Deaths in Roanoke—All Causes—859.

of the whole may be obtained by taking the average of many parts. The one day surveys conducted by the U. S. P. H. S. in Cleveland, Detroit and many other large cities, as well



as the recent surveys of Virginia Cities and Counties will serve to give some concrete idea of the prevalence of syphilis and the other venereal diseases. Since the cases not under treatment are not included, these figures, obviously, represent but a small fraction of the cases actually existing in these cities on the day of the survey. However, in the future, these figures will serve as a valuable basis for comparison when attempting to determine whether these diseases are on the increase or decrease. The percentage of positive Wassermann tests mentioned in Dr. Osler's address on Syphilis (recently sent by the State Department of Health to the physicians of the State) are quite significant, since Dr. Osler vouches for the accuracy of these tests. At the Brigham Hospital, Boston, 15 per cent of those examined had syphilis; in Baltimore, 10 per cent of those examined had syphilis; and at the University Hospital, Philadelphia, 14 per cent were found to be infected. Many other reports are equally as startling.

At the Roanoke Hospital, of the 807 Wassermann tests made during 1928 as a part of the regular routine examination of those admitted to the hospital, 12.8 per cent were positive. Dr. VanderHoof reports that of 2,449 patients—white and colored—from the out-patient and in-patient clinics of the Medical College of Virginia, 44 per cent showed complete fixation, with an additional 12 per cent giving partial or incomplete reactions. On the basis of his wide experience in examining men in the army, Col. Vedder estimates that about 20 per cent of the young adult male population of this country, from which the army is recruited, have syphilis. It is generally agreed that the percentage of syphilis in the negroes of this State is practically double that for the whites.

If these and an enormous accumulation of similar figures have any significance, we may, with a fair degree of accuracy, assume that at least 10 per cent of the entire population of Virginia are infected with syphilis.

I have shown something of what this means to Virginia in mortality. Time does not permit even the mere mention of the horrors of its morbidity. Blindness, decreased efficiency, dependency, delinquency and insanity are only a few of the pathetic pictures with which we are too familiar.

If these things be true, what are we as

Health Officers and Public Health officials (whose duty it is to prevent disease) doing, and what are we going to do to prevent the continued spread of this disease? Since there is no intermediate animal or insect host—and in the control of syphilis we must reckon directly with the will of the individual and with one of the strongest of the cardinal appetites of man—sex desire—its prevention is obviously an exceedingly difficult task.

But because the task is difficult, should we assume the attitude of despair and follow the line of least resistance?

What would we do and what would the people of Virginia expect of us should 10 per cent of the population of this State have smallpox?

Surely the "Great Pox" is equally as serious a disease as smallpox. Let us then face the facts: At least 10 per cent of the people of Virginia are infected with a very serious, chronic, maiming, fatal disease—syphilis; the cause of this disease is known: the cure is known; and the means of transmission are known.

Strange, indeed, it seems that syphilis is a disease about which so much is known and about which so little is said.

How strange does this silence seem when compared with influenza, for instance, about which nothing is known and about which so much has been said!

Are we quite fair to the people of Virginia to hold up cancer as such a scourge—causing the death of one out of every ten women over forty years of age; to talk so much about the great plague, tuberculosis—one out of every ten deaths; to point out the ever-increasing ravages of the so-called degenerative diseases of middle life—responsible for so many deaths, and say so little about syphilis, the greatest scourge, the greatest plague, the greatest producer of invalidism, the greatest wrecker of homes and the greatest producer of death—responsible for at least one out of every seven deaths?

The prevention of this curse of mankind entails and merits an enormous amount of effort, with ramifications in practically every sphere of human life. All these fields of endeavor are very well embraced in the "American Plan of Control," with which you are, of course, entirely familiar. I should like to stress but one phase of this plan—*Quarantine*.

In considering the prevention of syphilis,

the entire population of the State (as with the other communicable diseases) is divided into two great classes: Those who have syphilis and those who have not—or the sick and the well.

For the latter (the well), we would recommend education—education which not only gives information, but inclines the will to conform to those standards of conduct which are for the good of the whole as well as the individual. Such education should, of course, embrace information concerning the seriousness and the prevalence of the disease; the scientific facts concerning sex—including the fact that continence is not incompatible with perfect health; and also the fact that the sex organs are not muscles, and therefore do not require exercise to be kept in perfect condition.

The former class—the diseased—is divided into several groups according to their knowledge and their regard for rights of others.

1. There are those who know the seriousness of their condition, the danger to others, and have a fair regard for the welfare of others. These also need education and facilities—through free clinics and otherwise—for prompt and adequate treatment.

2. Those who know very little of the seriousness of their condition, or of the danger to others, and are therefore very careless. These are tragically dangerous. This class includes many morons, semi-morons and feeble-minded who should be handled by the Department of Public Welfare and confined indefinitely in institutions for the feeble-minded.

3. And, finally, we have the largest and most dangerous group—composed mainly of prostitutes—those who know the seriousness of their condition and the danger to others, but are perfectly indifferent to the welfare of others. These are criminally dangerous, and should be placed in absolute quarantine.

It is to this third group that I wish to call your attention at this time, since this group constitutes the greatest menace to society and at present seems to be receiving but very little attention.

The State is indeed to be congratulated upon the splendid educational program now being conducted by the Bureau of Social Hygiene, and especially that part of the program which endeavors to provide scientific sex education for the teachers of the State. This knowledge of sex hygiene, when acquired by the teachers

and given to the children of the State, will be possessed in a very few years by the parents of the State, who will in turn impart it to their children, and so on from generation to generation. It is quite proper that sex education should be given children by parents, who know when and where and how to approach this subject. When commenting on this educational program, our Health Commissioner said: "This is doubtless the logical way to attack one of the greatest menaces to civilization."

While we have the greatest confidence in education, and believe that this plan will eventually be productive of great good, yet experience has shown that knowledge of right does not always produce right living, and so long as men and women remain human they will be prone to yield to temptation. While monogamy, which has gradually developed as a result of moral and economic considerations, is accepted as the morally correct social state in Virginia and the civilized world, yet polygamy biologically is a natural condition, and as yet education and morality have not been able to restrain man from promiscuity—the underlying cause of prostitution. Education may tend to prevent prostitution, but it has not done so and, if we may judge the future by the past, it will doubtless require a great many years for education to bring about the non-existence of this third group, composed, as we have said, mainly of professional, amateur and clandestine prostitutes, who care nothing for the welfare of others, but deliberately, wilfully and often maliciously transmit these diseases.

While waiting for education to effect these desirable changes in our social structure, a great wall should be built about these main sources, or springs of infection, as a means of protection for the present and many succeeding generations. Fortunately, Virginia already has an excellent Venereal Disease Law. Based largely on the standard form, it embraces practically all of the essential features for the complete repression of prostitution and the control of venereal diseases. Under this law the Health Officer is given almost unlimited power, which is a very wise provision.

Among other things, this law says that (owing to the prevalence of venereal diseases among these classes) persons found guilty of any one of a list of nineteen different offenses must be sent by the court to the Health Officer



for examination. It further provides that "Upon the receipt of a report of a case of venereal disease in a person conducting himself or herself in such a manner as to be a menace to the public health, it shall be the duty of the Health Officer to institute measures for the protection of other persons from infection by such diseased person."

"Local Health Officers are authorized and directed to quarantine persons who have or are reasonably suspected of having syphilis, gonorrhea or chancroid, whenever in the opinion of the Health Officer quarantine is necessary."

Section 4548g of the Code provides for an indeterminate commitment to the State Board of Public Welfare for "not less than three months nor more than three years," of females convicted of prostitution and being a keeper, inmate or frequenter of a house of ill-fame, prostitution or assignation, or for soliciting or associating with persons of ill-fame, or being contributory to the delinquency or dependency of others. The State Board of Public Welfare may in turn commit such persons to a state institution or some other suitable institution.

Section 4548f of the Code provides that any person guilty "of prostitution or of being a keeper, inmate or frequenter of a house of ill-fame, prostitution or assignation, or soliciting for immoral purposes shall be examined for venereal diseases by the Health Officer or a physician appointed for this purpose, and, if infected, such persons are *not* to be fined but shall be committed to a city farm or hospital if available, or to the jail, or to any hospital for the treatment of venereal diseases which has been or may be established in this Commonwealth." There is no conflict, or overlapping of duty or authority, between Health Officers and police authorities, but ample provision is made for the closest cooperation in the handling of these cases.

It is well known that the majority of this group (the scum and driftwood of society) float from city to city as the prospects for improved business change from time to time. Since they have no permanent abode, they should not be considered the problem of any particular community, but of the State as a whole. In fact, this problem is national and even international in its scope, but State control is perhaps all for which we may at present hope. The establishment and maintenance

of a suitable institution for the quarantine and treatment of this group by each city or community would entail much unnecessary duplication of effort in supervision and in general overhead expense, which should be avoided if possible. Therefore, it seems that the greatest need (certainly the greatest public health need) of the State today, and the missing link in an otherwise strong chain of venereal disease control, is a suitable institution for the quarantine of prostitutes and other females of group three. The males of this group, since they are fewer in number, may be conveniently cared for locally in jails or on city farms.

Many arguments have been advanced against such an institution. Among the objections often mentioned is the cost of maintenance. Cost of maintenance need be neither excessive nor prohibitive. For example, at the Detention Home at Newport News, Va., in handling approximately 500 patients from July, 1921, to July, 1924, the average cost of maintaining each patient per day was only eighty-one cents. When an average of twenty patients per month was maintained, this institution was run on the allowance from the State as for persons in jail. This did not include interest on investment, drugs, or medical attention, as the building was a gift, the drugs were furnished by the State, and the medical care of the patients was a part of the duties of the Assistant Health Officer. It did include the salary of a Superintendent, a nurse, a matron and a social worker, as well as the general upkeep of the building, equipment, heat, light and food.

The patients were given an abundance of plain, wholesome food at a cost of twenty cents per patient per day. Each meal was accurately weighed and the caloric value computed to insure the provision of at least 2,000 calories per patient per day.

The last legislature of Virginia appropriated \$1,012,480 for the care of the insane in this State, or nearly twice as much as the entire amount appropriated for public health work. Would it not be good business, to say nothing of the humanitarian and sociological aspects of the subject, to expend a little more for the prevention of syphilis, which causes at least one-fourth of this insanity? When the benefits to be derived from an institution for quarantine are taken into consideration, the cost of maintenance becomes quite insignificant. Each city should, of course, maintain a place

of detention for those apprehended by the court or the local Health Officer as being suspected of having a venereal disease while undergoing examination to determine whether or not they are infected. If found to be infected, they should then be committed by the local Health Officer or the court, as the case may be, with the consent of the State Commissioner of Health, to the State institution for treatment, rehabilitation and readjustment to society. The recently organized traveling psychiatric clinic of the Department of Public Welfare should be of inestimable value in the examination and in the rehabilitation of these patients.

The formation, at the recent meeting of the Medical Society of Virginia, in Danville, of a society of physicians who are particularly interested in the control of venereal diseases, was indeed very gratifying and suggestive of the present trend of thought and of an awakened interest among physicians in this problem.

Should the State Department of Health determine upon a policy of absolute quarantine for those infected with venereal diseases who make a business of infecting others, and endeavor to secure the passage of a bill authorizing the establishment of a suitable institution with an appropriation for the necessary funds for its construction, equipment and maintenance, we feel sure the Department will have not only the backing of this recently organized society, but also the hearty support of all well-informed, conscientious physicians of the State. Such a plan should and would have the whole-hearted endorsement and support of the members of this organization.

Through united effort, first, in the education of the public, and, then, with the public, in the education of the representatives in the legislature from our respective communities, there should be little difficulty in securing the passage of such a bill.

"Truth is mighty and will prevail." Self-preservation is not only the first law of nature, but it is in reality an instinct. Often even above this instinct for self-preservation is the desire to preserve and promote the well-being of the offspring. When the people know the truth, they will respond.

Many states have reformatories or other institutions for the care of women, where treatment is given those found to be infected, but since their chief purpose is reform or punishment for crime, none of these seem to embrace

all of the desirable features of an institution whose primary object is quarantine as a public health measure for the prevention of disease.

As Virginia has been first in so many things for the good of the Nation, may she be the first to establish a place of quarantine for the chief disseminators of the venereal diseases, the first to put into effect, completely and effectually, the "American Plan of Control," and lead the way in the solution of this problem and in the conservation of human health and happiness.

### THE MEDICAL TREATMENT OF DUODENAL ULCER.\*

By PAUL F. WHITAKER, M. D., F. A. C. P., Kinston, N. C.

Chronic peptic ulcer is a common disease, occurring in 12 per cent of a series of 2,000 necropsies. According to Rivers, of the Mayo Clinic, only 30 per cent of the cases of peptic ulcer were definitely diagnosed before admission, and only 10 per cent had had fairly adequate treatment. These figures are quoted to emphasize the necessity of early diagnosis and prompt institution of treatment in a condition which is apparently increasing. It goes without saying that accurate diagnosis is prerequisite to rational treatment.

Once the diagnosis is established, rational treatment, whether medical or surgical, should be promptly undertaken. There are those who believe that every case of peptic ulcer, whether gastric or duodenal, should be treated surgically, and there are others who take the opposite view that all cases of peptic ulcer, whether gastric or duodenal, should be treated medically. Between these two extremes there is a middle ground where sound reasoning and deduction in the individual cases should decide the issue between surgical or medical therapy. Lewisohn, of the surgical service of Mount Sinai Hospital, reports, after a careful survey of ninety-two patients upon whom gastro-enterostomy was done for duodenal ulcer, that 47 per cent were cured, 19 per cent had slight complaints, and thirty-four had gastro-jejunal ulcers. He has now replaced gastro-enterostomy with partial gastrectomy, and states that he has reduced the bad results following surgical treatment from 50 to 5 per cent. In the light of these figures plus an operative mortality of from 2 to 10 per cent, no one can say that surgical treat-

\*Read before the Seaboard Medical Society, at Washington, N. C.



ment is entirely satisfactory. VanderHoof states that practically every case of uncomplicated duodenal ulcer is curable by adequate medical treatment, but that in actual practice only about 50 per cent of the patients are permanently cured. He attributes this to failure of the patient to cooperate as to details or duration of treatment. Nevertheless, they are failures whether it be the fault of the physician or the patient, and must be listed as such. My own experience with a series of forty-six cases of duodenal ulcer teaches that the success of medical treatment depends to a great extent on the intelligence of the patient, and the ability of the physician to make him understand his condition and to make him cooperate. Surgical treatment is certainly indicated in peptic ulcer, either gastric or duodenal, when it is associated with pyloric obstruction, peri-duodenal adhesions, or diseases of the gall-bladder or the appendix. The physician who persists in treating ulcer complicated with these conditions brings only suffering to the patient, and discredit and loss of prestige to himself. Due to the fact that a certain percentage of gastric ulcers undergo malignant degeneration, the internist who treats this condition assumes a heavy burden of responsibility. Uncomplicated duodenal ulcer should be treated medically, and surgery only undertaken after repeated failure of medical treatment, or in the instance of perforation.

The principles of the treatment of duodenal ulcer were first brought out by Sippy in 1912, and again in 1915. Numerous modifications have been recommended, but the basic principles remain the same. There are two all important requirements in the treatment of ulcer: The ulcer must be given a chance to heal, and all possible sources of infection which could have given rise to the ulcer should be eliminated. The control of pain and the institution of the healing process seem to be intimately associated with marked reduction in gastric acidity, and, if a favorable result is to be obtained, this must be accomplished.

*Frequent Feedings and Diet:* Frequent feeding is by far the most potent therapeutic measure that we have in controlling gastric acidity, the frequent feedings, keeping the acid combined with the food. The more I treat peptic ulcer, the less I think that it is necessary to hospitalize the patient except in cer-

tain instances of severe pain, or marked pylorospasm. These cases usually do best on an ounce and a half of milk and an ounce and a half of cream every hour from 7:00 A. M. to 8:00 P. M. It seems to me to be hardly fair to keep the average working man, or man of modest means in bed in a hospital for three weeks, causing him to lose all this time from his work, and at the same time having to undergo the heavy expense of hospitalization, when there is at least a 50 per cent chance that he may have a recurrence. There are advantages to this treatment in that it allows the physician, by frequent gastric analysis, to check upon gastric acidity and occult blood in the stools, and thus watch the progress of the patient. It is my practice to do a gastric analysis and test the stool for occult blood at frequent intervals on my hospital cases. Hospital treatment by the Sippy method should be reserved for those who have the leisure and money to spend for this service. As already stated, it is occasionally necessary to hospitalize for a week or ten days a case with acute pain or marked pylorospasm and feed them every hour until this is controlled. For the vast majority of cases, however, six feedings a day will suffice. It is my practice to allow my patients to eat three regular meals each day, and midway between each meal and at bedtime to drink a glass of milk, a raw egg, or several Uneda biscuit. If the patient is to stay at work, he must certainly be properly nourished, and he is given a printed diet list, on one side of which are printed the foods allowed and on the other side the things forbidden, and told to eat as much as he likes at a meal. The diet is liberal, and there is no privation about it, only the foods with rough scratchy material, such as nuts, celery, berries, raw fruits, gristles, etc., being eliminated. Highly seasoned food with pepper, vinegar, spices and alcohol are forbidden.

*Drugs:* To aid in keeping the hydrochloric acid content of the stomach under control alkalis are indicated. A mixture containing ten grains each of magnesium oxide, sodium bicarbonate and bismuth subcarbonate after each regular meal and at bedtime has proven very satisfactory. It not only reduces gastric acidity, but usually has a mild laxative action, giving the patient on an average of one to two stools a day. If this action is not obtained, then two ounces of heavy mineral oil

should be taken at bedtime. Because of its excellent affect in relaxing the pylorus, belladonna is certainly indicated. The tincture is usually given in ten minim doses three times a day. Belladonna very probably renders the control of acidity more likely by its inhibitory action on the acid glands. A large percentage of ulcer patients are of the nervous hypersensitive type and sleep poorly. In these cases I unhesitatingly prescribe luminal over a long period of time without any apparent ill effect. An element of danger in the use of alkalies in large doses might be mentioned. When a patient who has been getting along well begins to complain of headache, or that the milk tastes sour, the alkali should best be discontinued in order to prevent the occurrence of a possible alkalosis.

*Eradication of Foci of Infection:* Though in many respects the etiology of peptic ulcer is still obscure, Rosenow, Meisser, and others have shown conclusively that certain strains of streptococci have a special affinity for gastro-duodenal tissue. Meisser has shown how organisms from dental infection in cases of peptic ulcer after inoculation into the dental root canal in dogs have resulted in the prompt formation of ulcers scattered through the stomach and duodenum. I have frequently noted an exacerbation of symptoms in ulcer patients after removal of foci of infection. In the light of these observations, it would seem unreasonable not to take advantage of these lessons learned in the laboratory, and make the eradication of infectious foci a matter of routine.

*Dangers of Severe Exercise:* The danger of severe exercise in the patient with peptic ulcer is a factor in the treatment that current literature seldom mentions, and which I believe to be of great importance. This was very forcibly impressed upon me by a recent case. A young intelligent farmer, who had been under observation for three weeks, and who was getting along nicely, was superintending the loading of some bales of cotton into a truck. Getting impatient with the laborer, he himself took hold of a bale of cotton and gave a sudden tug. This was immediately followed by a recurrence of pain with nausea which lasted for an hour. This in turn was followed by a recurrence of symptoms, the hunger pain and dyspepsia returning. He finally had to be put to bed for a week and given hourly feed-

ings before symptoms were controlled. Most patients with peptic ulcer state that their symptoms are worse in the fall or spring. It is in these months that the average working man performs his heaviest manual labor. The anatomic arrangement of the first portion of the duodenum, serving as it does as a sort of hook from which the stomach swings, may have something to do with the tendency toward ulceration at this point.

*Control of Patient and Duration of Treatment:* If a cure is to be obtained by the procedure outlined in the medical treatment of peptic ulcer, control of the patient is absolutely essential. This, to my mind, is the most difficult part of the treatment. Relief of symptoms is usually prompt after treatment is instituted, and the patient is apt to feel that he is well and discontinue treatment. It is only by careful painstaking explanation of the principles of treatment by the physician, and insistence as to the carrying out of details, that cooperation on the part of the patient is to be obtained. In so far as possible he should be made a student of the subject, and impressed with the fact that the successful handling of his disease rests entirely with him.

The question of how long treatment is to be continued is important. It has been my practice to insist that every detail of the treatment be carried out for a period of one year. After the expiration of this period, all medication is discontinued, but the patient is encouraged, and often does, of his own volition, continue the frequent feedings. I have patients who are symptom free for four years after carrying out treatment for one year. My conviction is that patients with uncomplicated duodenal ulcer should be given adequate medical treatment and only in the event of its failure should surgical procedure be considered.

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### PAPILLARY CARCINOMA OF THE LARYNX—REPORT OF A CASE REQUIRING LARYNGECTOMY.\*

By E. TRIBLE GATEWOOD, M. D., Richmond, Va.

According to Eggston, from a histologic point of view only 1 per cent of carcinomas of the larynx are papillary in nature.

Review of the literature shows carcinoma of the larynx may follow the pre-malignant stage of either syphilis or tuberculosis. Sir St. Clair Thompson says, "I do not think that a frank papilloma or fibroma of the larynx becomes malignant, but the manifestation of malignant disease is, in a certain number of cases, foreshadowed by some vocal defect."

Jackson reported a case of papilloma of the larynx, that was followed thirty years later by cancer, and another similar case followed by cancer eight years later.

Mackenty recently reported a case of papillary carcinoma of the larynx in a woman, twenty years of age, who had hoarseness for three years. Neither Jackson nor Mackenty made any mention of antecedent pathology in their case reports.

It would seem that papillary carcinoma of the larynx is unusual, and especially so when compared with the frequency of like lesions in the bladder or elsewhere about the body.

The following case report should be of interest, because it appears from the clinical course and other studies that this patient had been subject during the period of eight years to an unusual laryngeal triad, i. e., chronic infiltrative laryngitis, papilloma and carcinoma:

L. B. A., white, aged forty. Referred by Dr. Chas. Caravati, December 9, 1928.

Complaint: Hoarseness, dyspnea, and loss of weight.

Family history: Negative for malignancy and tuberculosis.

Past history: Unimportant.

Habits: Moderate smoker, alcohol used in moderation for years.

Present illness: During the year of 1920 hoarseness appeared after unusual voice strain. The attacks were short and gave little concern until 1921, when he noticed his voice did not return to normal. He consulted a physician and received local treatment for months, without any definite improvement. He was treated by other specialists, at intervals, during 1922-1923, with little relief. February, 1924, he was studied thoroughly, from a local and general standpoint, at a very noted throat clinic, and given a diagnosis of infiltrative laryngitis and diseased tonsils. He was advised to have



Fig. 1.—Photograph of patient showing end of trachea united to the skin.

the tonsils removed and to give the voice complete rest for six months. Treatment influenced his local condition but little. Hoarseness was continuous and gradually progressive during 1925 and 1926.

About the middle of 1927 dyspnea developed upon exertion, in addition to the hoarseness; and during the major part of 1928 dyspnea was constant and progressive. April, 1928, after a coughing spell, he spat blood, and, as his respiration was thought to simulate asthma, he moved to Asheville for climatic reasons.

December 9, 1928, when I first saw the patient, he was decidedly hoarse and his respiration was obstructive in character. Indirect laryngeal inspection showed enlarged infiltrated arytenoids, suggesting a hypertrophic laryngitis, with obliteration of the false and true cords. The normal interior landmarks appeared to be replaced with bilateral tissue pro-

\*Read before the Virginia Society of Otolaryngology and Ophthalmology, at Staunton, Va., April 27, 1929.

liferation, thereby reducing the normal airway more than 50 per cent.

The oral and nasal cavities appeared to be normal. There were no glands palpable, and the adjacent laryngeal structures were normal. The patient was studied thoroughly by Dr. Caravati from the physical and laboratory standpoint and pronounced negative.

December 11, 1928, patient was admitted to the Johnston-Willis Hospital, and direct inspection of the larynx made with the Jackson speculum. Tissue proliferation was evident



Fig. 2.—Photograph of patient using Mackenty artificial larynx without tracheal tube.

in the subglottic area in a diffuse manner. A section was taken from the glottic region for histologic study, which proved we were dealing with a papillary carcinoma.

In view of the extensive involvement, a total laryngectomy was indicated. The two stage operation recently described and practiced by New, of the Mayo Clinic, was followed. This type of technic lessens the immediate post-operative reaction as well as the possibility of secondary mediastinal infection.

Having placed the naso-esophageal feeding tube in position, the first stage briefly consisted of separating the isthmus of the thyroid gland; skeletonizing the larynx and the three tracheal rings anteriorly and laterally, and severing the body of the hyoid bone.

The wound was closed with the exception of the anterior portion of the cricoid cartilage and the first tracheal ring. This area was left exposed for the purpose of doing a tracheotomy as soon as the temperature reached normal. This is done so the patient may adjust himself to that form of respiration, and also build up a wound resistance to the bronchial secretions,

which must contaminate the second stage operation.

The reaction following the first stage was mild, temperature not going above 101 and receding to normal on the fourth day. Four days after the initial operation, a cricoid cartilage plug was removed and a tracheotomy tube inserted. This was followed by a slight rise of temperature for five days.

The second stage was performed eight days after the first, and this consisted of re-opening the entire wound, completing the laryngeal dissection posteriorly and superiorly, closing the anterior opening in the esophageal wall, and severing and attaching the proximal end of the trachea to the neck skin. A laryngectomy tube was placed in the tracheal opening and the rest of the wound closed tightly.



Fig. 3.—Photograph of patient using Mackenty artificial larynx with tracheal tube.

The immediate post-operative reaction was not unlike that following the first stage. The feeding tube was made use of for twenty-two days and the patient was discharged from the hospital on the thirty-fourth day.

#### COMMENT

The clinical course of this case, as well as the microscopic studies, substantiate the co-existence of three laryngeal diseases.

First; there was no clinical evidence of a new growth after three years of obstinate hoarseness.

Second; the progressive symptoms of obstruction, approximating two years with no extra laryngeal invasion, favors benign origin.

Third; microscopic study showed a papillary process undergoing malignancy, and another specimen, taken some distance from the former, indicated a chronic inflammatory process.

*Professional Building.*



## PERFORATED GASTRIC AND DUODENAL ULCERS.\*

By T. JEFFERSON HUGHES, M. D., Roanoke, Va.

Perforated ulcers may be acute, sub-acute or chronic. Acute, when the symptoms are sudden and the contents of the viscus are free to escape into the peritoneal cavity; sub-acute, when the opening is exceedingly small or has been closed by adhesions or plugging by omentum or lymph; and, chronic, when firm adhesions have formed between the ulcer and adjacent structures.

Perforation usually occurs in a chronic ulcer. In sixty-one deaths occurring at the Leed's Infirmary from 1910 to 1920, sixty were from perforation of chronic gastric ulcers, and in 117 deaths from perforated duodenal ulcers 105 were of the chronic variety. In 218 cases of perforated duodenal ulcers and 248 cases of perforated gastric ulcers, only twelve out of the combined number gave no symptoms of previous stomach trouble.

The cause of gastric and duodenal ulcers has not been ascertained, and, although admitting of much varied theorizing, will not be discussed at length in this paper. Whether its origin centers around the theory advanced by Rokitsky and Berthold in the first part of this century that it is due to localized vascular disturbance and subsequent focal nutritional changes due to digestive action of gastric secretion on the devitalized tissue, or to the neurogenic theory that ulcers are the result of dysfunction of the vegetative nervous system, producing spasm of localized areas, causing a circumscribed ischemia of the mucosa, or to some other cause, does not alter the case in hand when perforation has occurred, in so far as the immediate problem is concerned. Ulcers are much more common in men, and usually occur between twenty-five and sixty years of age.

### SYMPTOMS AND DIAGNOSIS

The symptoms of perforated ulcers are usually characteristic; and a diagnosis of perforation is ordinarily easily made. The location of the perforation may be difficult to diagnose, but, when the calamity comes, it is exigent we recognize that whatever has happened and wherever its origin, it is something which gravely threatens life, and the adoption of rescue measures is a cardinal obligation. We should know what to do rather than what has

happened if only one of these can be known. That a disaster has taken place within the abdomen is apparent, and the employment of operative measures is imperative. The history of a more or less characteristic train of symptoms and often of a previous diagnosis of ulcer usually clears the way to a quick diagnosis of perforation.

A sudden onset of terrific, tearing, racking, bursting pain, usually over the entire abdomen, particularly the upper part, which spreads over the lower part of the chest and sometimes up to the shoulders, marks the onset of acute perforation. The face is pale, anxious and appealing. Short panting respirations, costal in character, diaphragm immovable, nostrils dilated, mouth closed, cold perspiration, legs drawn up, pulse quick, all combine to give a picture of profound shock.

The characteristic pain, awakening a patient at night, is usually due to perforation of a duodenal ulcer. The pain is, however, not always so characteristic, for, instead of being general, it may be localized, depending somewhat on the location of the perforation. If the pain occurs over the right iliac region, it is due to irritation of the peritoneum from the downward drainage of the gastric or duodenal contents, and may lead to an erroneous diagnosis of appendicitis. The pain is sometimes referred to the tip of the right shoulder. Vomiting is of frequent occurrence, but, as strange as it may seem, blood is rarely seen in the vomitus. The symptoms of intense shock are due to acute peritonitis. If these symptoms improve within a few hours, it may be due to temporary plugging of the perforation by stomach contents or omentum, and may lead us to a wrong diagnosis and a dangerous postponement of operative measures.

While the characteristic symptoms are present in most cases and the presence of perforation is readily recognized by the average physician, yet we realize that there are cases which tax the diagnostic acumen of a master. Especially is this true after the primary symptoms of shock subside. A point which might be well to remember is that vomiting has no effect on the pain. Acute perforation of ulcers is usually first seen by the family physician and upon his recognition of the disaster and promptness of action depends the lives of these patients. If it is desired to make a diagnosis of the true condition within the abdomen be-

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fore operation, X-ray may help to clear up the question of perforation. Free gas in the peritoneal cavity demonstrates almost conclusively that there has been a perforation in the gastro-intestinal tract somewhere. With free air within peritoneal cavity, you will usually have diminution in the normal area of liver dullness on percussion, but, with an intensely rigid abdomen and a high degree of tenderness, it is difficult, at times, to make a satisfactory physical examination. An X-ray examination can be made without inconvenience or aggravation of pain to the patient, in the recumbent position, and may clear up a disputed or uncertain diagnosis as to the existence of perforation, but it does not demonstrate its locality. The alarming prostration, intense and agonizing pain and extreme rigidity are usually sufficient indications for opening the abdomen; and the only point gained by knowing the location of the ulcer is to properly locate your incision which may obviate delay and lessen trauma.

Some of the conditions which might produce symptoms simulating those of a perforated ulcer, are gunshot or traumatic rupture of the stomach or intestine, ruptured tubal pregnancy, appendicitis, acute intestinal obstruction, gall stones, and acute pancreatitis.

Do not be misled by the temporary improvement of symptoms of shock which may follow perforated ulcer. This, as has been said by W. J. Mayo, is the most favorable time to operate. Deaver once said, "Better an early operation by an indifferent surgeon than a late operation by a master in these cases."

The following table, taken from an article in the March issue of the *Practitioner*, in London, by Moynihan, will serve to indicate the importance of an early operation. These

TABLE FROM THE PRACTITIONER.

	No. of Cases	Recoveries	Deaths	Mortality
Cases operated within 6 hours from onset.....	35	34	1	2.85%
Cases operated from 7 to 12 hours from onset..	63	56	7	11.11%
Cases operated from 13 to 18 hours from onset..	20	16	4	20. %
Cases operated from 19 to 24 hours from onset..	15	10	5	33⅓%
Cases operated over 24 hours from onset.....	14	8	6	42.85%

figures were compiled from Mr. Gray Turner's private cases, and were operated by a most competent surgeon under the most favorable circumstance.

The following table, taken from Leed's Gen-

TABLE FROM LEED'S GENERAL INFIRMARY.

	12 hours	12 to 24 hours	Over 24 hours
Perforated gastric ulcers operated under ----			
Percentage of mortality of gastric ulcers.....	18.18%	50%	100%
Percentage of mortality of duodenal ulcer perforatione..	15.43%	50%	88%

eral Infirmary, covering a period of 6 years and operated by various operators:

#### TREATMENT

The scope of this paper eliminates discussion of the medical and dietary treatment of ulcer, and it is conceded that this had previously been employed, consequently, has no place in the immediate treatment of a perforated ulcer.

Medical treatment should be given a fair and diligent trial in all cases of early recognized ulcers, and it will be found that a large per cent will improve, and many will entirely heal, but the physician who advises an extended continuance of palliative treatment in unimproved ulcers assumes a grave responsibility. The surgeon and the internist must, however, work conjointly in the case of perforated ulcer, for it must be realized that prolonged dietary and medical care following operation aids not only the recovery, but is of utmost importance in the prevention of recurrence of an ulcer.

#### OPERATION

The type of operation depends on the condition of the patient, the location of the ulcer and the skill of the operator. Many of these patients are in a condition of profound shock when they go on the operating table, and will survive nothing more than a rapid closure of the opening, a more radical operation being postponed until later, if necessary. Where there is pyloric obstruction the operation demands, of course, more than simple closure of the perforation by suture.

Gastro-enterostomy or some form of pyloroplasty will be necessary, and, if the patient survives the added shock of the operation, a smoother and more rapid convalescence may

be expected. Authorities are not in perfect agreement as to method of operation, but the pendulum appears to be swinging toward the more radical operative procedures. I am of the conviction that the patient's physical con-



dition and the time required to do the operation are the cardinal factors in determining the type of operation to do.

Two or three cases recently operated fully illustrate this emergency. A man, forty years old, was brought to the hospital with the classical symptoms of a perforated ulcer present and exaggerated. He was told positively that an operation offered him the only hope of recovery. This he declined, saying that he would wait until tomorrow and, if no better, he would consider an operation. He was told that he would not be living tomorrow at this time, and was urged with all our power to have an immediate operation, but to no avail, and the patient died at 4 A. M. the same night.

Within a week a similar case, a man forty years old, was brought to the hospital with the same classical symptoms of acute perforated ulcer following drinking a bottle of coca cola. He was promptly apprised of his condition and an immediate operation advised. He at first said he would not be operated on at all. He was told of the case a week before and told that his case would terminate likewise, which impressed him to the extent that he agreed to immediate operation. A perforated ulcer on the posterior aspect of the lesser curvature was readily located, which was closed by in-folding and suture. The gastric contents which had escaped into the peritoneal cavity were removed as far as possible, a cigarette drain inserted, and the abdomen quickly closed. He made an uneventful recovery. It is of interest to note that while both of these cases presented similar symptoms on entry to the hospital, the first case gave a history of indigestion for years, while the second case never had had a symptom of stomach disorder.

A case illustrating a different type of operation might be mentioned. This man, thirty years old, came to the hospital presenting the classical symptoms of perforation. He gave a history of having been operated on for chronic appendicitis and for the relief of gastro-intestinal indigestion. He experienced marked relief from his symptoms for about a year following the appendectomy, which may have been due to rest and restricted diet following the operation. The day his ulcer perforated, he walked into a drug store and drank a glass of coca cola, when a sharp, agonizing pain struck him in the upper abdomen which doubled him up, and he was unable to straighten

his body until he was put under an anesthetic. A perforated ulcer was readily located on the anterior aspect of the stomach near the pylorus which was resected and closed, as follows: A piece of the stomach wall containing the ulcer was resected longitudinally and the incision



closed vertically, thus serving to increase the lumen near the pylorus, rather than constricting it. He made a smooth and rapid recovery.

#### CONCLUSIONS AND SUMMARY

1. Symptoms are usually so classical and regular that diagnosis is easy. This is a disease of twenty-five to sixty year old patients.
2. Disease most likely confused with acute appendicitis.
3. Large majority of cases occur in men.
4. Treatment is definitely surgical and should be done early—within six or eight hours, if possible.
5. Mortality from 45 to 50 per cent.
6. Practically all cases give history of stomach trouble.
7. Do not be misled by occasional improvement of symptoms of shock; nature may have temporarily plugged the opening.
8. Drainage should be used in cases operated on late, where infection is liable to occur.
9. Diffuse peritonitis is immediate cause of death.
10. The great majority of cases occurring near the pylorus leads us to believe that traumatism during the process of digestion is a predisposing cause.
11. The physical condition of the patient and the time consumed in operation should be deciding factors as to the type of operation employed. Speed and conservatism in the profoundly shocked cases will save some that could not survive a prolonged radical opera-

tion, and should be employed even though a second operation later may be necessary.

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### THE MIMICRY OF THE SYMPTOMS OF PEPTIC ULCER.\*

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The symptoms of peptic ulcer may cover a wide range, and are not infrequently vague and indefinite. They depend to some extent upon the type of ulcer, its location, and the characteristics of the individual who possesses the ulcer. The symptoms of a peptic ulcer anywhere usually follow in a general way those of a duodenal ulcer. The symptoms of duodenal peptic ulcer may be described under three broad types. In all of them there is a tendency toward latent periods with comparative comfort, followed by an exacerbation of symptoms that occurs more frequently in the spring and the fall.

#### SYMPTOMS OF PEPTIC ULCER

In the first type, the chief complaint is the so-called hunger pain, coming on two to four hours after meals in duodenal ulcers, and sooner in gastric ulcers. This pain is usually relieved by food, soda, gastric lavage or vomiting. The patient sometimes awakens early in the night with pain, which ceases after taking alkalies or milk and crackers. This condition lasts from six weeks to several months, alternating with periods of comparative freedom from symptoms.

In the second type the prominent symptom is hemorrhage. The patient may apparently be in good health when hemorrhage suddenly occurs, with vomiting of blood and with tarry stools. Tarry stools and anemia may constitute the only symptoms.

In the third type there are no definite gastric symptoms, but discomfort in the lower part of the abdomen and sometimes a tendency toward diarrhea. The appetite is poor and there is loss of weight.

These three types of symptoms of peptic

ulcer may occur separately or combined. The first and second are commonly associated.

Though these three types or combinations of types cover most of the cases of peptic ulcer, there are occasional instances in which a peptic ulcer produces very confusing symptoms. For example, Mr. A. K. P., age thirty-four, had a history of having had several previous attacks of what appeared to be kidney colic on the right side accompanied by vomiting. A few hours before admission to St. Elizabeth's Hospital, October 29, 1924, he suffered a very marked attack which began with pain in the upper right side and concentrated around the region of the right kidney. There was slight general abdominal pain and tenderness. The urine was cloudy and contained some albumin and a few leukocytes. Cystoscopic examination was negative. The following day the pain seemed to locate in the right iliac fossa, and his appendix was removed. It was swollen and congested. The tissues around it were edematous, particularly around the mesentery of the cecum and ascending colon. A drainage tube was inserted. The appendix contained some pus. Five days after this operation, duodenal and stomach contents appeared through the drainage tube. There was but little pain or muscle spasm in the epigastric region. On November 6th an incision was made through the inner portion of the upper right rectus muscle. The duodenum anteriorly was slightly adherent and showed a few lymph flakes, but in the posterior wall there was marked infiltration. The pylorus was occluded with a kangaroo tendon and a posterior gastroenterostomy was done. The patient died on November the ninth. Post-mortem examination showed the right kidney floating in foul liquid containing duodenal and stomach contents. There was a large ulcer in the posterior duodenal wall, which had perforated retroperitoneally. The duodenal contents had gravitated around the kidney and in the region of the appendix. The symptoms were at first of kidney colic, and later were the symptoms ordinarily found in appendicitis.

The symptoms of kidney colic and the symptoms of appendicitis can, therefore, be caused by the perforation of a posterior duodenal ulcer.

It is, however, the mimicry of the two conspicuous symptoms of peptic ulcer, hunger pain and hemorrhage, that chiefly concerns us, and

\*Oration in Surgery before the 79th annual meeting of the Illinois State Medical Society, at Peoria, Ill., May 22, 1929.  
 This oration is being published in the August number of the Illinois Medical Journal.



in order to comprehend the mimicry we must consider the cause of these symptoms in ulcer.

### HUNGER PAINS

Hunger pain in peptic ulcer, particularly in duodenal ulcer, has excited much interest. The work of Cannon and Washburn in 1912 first established definitely that hunger pains in a normal stomach were due to contraction of the gastric muscles. This was ascertained by placing an inflated balloon in the stomach and connecting it by a tube with another balloon emersed in water from which tracings were made on a kymographic drum. The patient indicated when the pains occurred, and they coincided with the contraction on the balloon in the stomach. Carlson and his associates have elaborated this work and confirmed the original findings of Cannon and Washburn.

The so-called pangs of hunger accompanying a contraction of the stomach show alternating periods of quiet and activity. In investigating the pain of peptic ulcer it was assumed that it was probably an exaggeration of the hunger pains which might occur in a normal stomach. There is extensive literature on this subject, much of it contradictory. A. J. Carlson, H. Ginsburg, W. W. Hamburger and others believe that the pain in duodenal ulcer is due to contraction of the gastric muscles, though the contractions are not usually as deep or powerful in patients with ulcer as in the hunger pains in a normal stomach. B. B. Crohn and A. O. Wilensky, W. L. Palmer, and others found that there was no particular gastric contraction in about one-fifth of their patients with peptic ulcer. Reynolds and McClure also found that there was nothing unusual in the gastric and duodenal peristalsis in many of their patients with peptic ulcers. C. W. McClure thinks that as motor abnormalities accompanied pain, and also occurred without pain, both may be due to some common cause. He regards the subject as still indefinite.

It has been shown that when there is unusual contraction of the pyloric portion of the stomach, frequently the duodenum also contracts abnormally. Hunger pains apparently are timed more accurately with contraction of the duodenum or jejunum than with contraction of the stomach, and the tone of the duodenum often rises and falls in coordination with

the stomach. Distention of the duodenum is thought by C. M. Jones, of Boston, and others to cause hunger pains.

An interesting observation by Payne and Poulton showed that apparently there are hunger contractions in the esophagus, and this suggests the possibility that at least some of the pain in peptic ulcer is caused by spasm of the esophagus.

The theory of production of pain by excessive acid in the gastric juice has also stimulated much discussion. A few investigators have been able to increase the discomfort of patients who had an active ulcer by introducing dilute hydrochloric acid into the stomach through a tube. Others have found that the introduction of acid in these patients merely produced a mild burning sensation but not the typical so-called hunger pains (Alvarez.) It has been noted, too, that patients with low hydrochloric acid content or even without free acid in the gastric juice have been subject to typical hunger pains.

An important factor has been emphasized by Palmer, who has shown that much depends upon the irritability of the ulcer. Thus, if the duodenal and gastric mucosa is normal, the ingestion of 100 to 200 c.c. of .5 per cent hydrochloric acid causes no symptoms, while symptoms are produced if the ulcer is active, the administration of acid often bringing on a typical attack of pain which is relieved by the usual methods of administration of soda or washing out the stomach. However, in all cases of active ulcer this does not occur, so causation of hunger pain by increased acid does not hold for every case. Ivy has shown that, while normal mucous membrane of the bowel is insensitive to ordinary traumas such as clamping or cutting, when it becomes congested and edematous pinching or cutting causes pain and sometimes vomiting. He believes that the intermittent pain of ulcer is due to changes in tone of the muscles at the site of the ulcer, and is produced by local spasm, while continuous pain is due to congestion or swelling around the ulcer from the inflammation.

The important point in these observations seems to be a lowering of the threshold for the stimuli of pain in the nerve endings of the stomach and duodenum. This increased sensitiveness of the sensory nerves is, of course, a common occurrence where the sensory nerves

are more abundant, as in the skin. Inflammation in the skin of the hand, for example, will cause even a slight pressure to give pain. So in the stomach or duodenum the inflammation around the ulcer appears to lower the threshold for the stimulation of the sensory nerves; consequently, normal peristalsis without markedly accentuating the local spasm around the ulcer will be painful. In some cases of peptic ulcer acid may not only increase the sensitiveness of the gastric or duodenal sensory nerves which normally are not exposed to acid because they end in the muscular or submucous coats, but may in this condition actually cause pain. If, however, the threshold for painful stimuli is about normal, the spasm and the excessive acid are without painful effect.

It is commonly known that many external lesions follow this general course. The sensitiveness of a callus or corn may vary even though the corn itself remains apparently unchanged. It is known, too, that there are occasional cases in which the gastric mucosa is intact and yet so-called hunger pains supposed to be typical of peptic ulcer occur and are relieved by soda or by emptying the stomach.

In pylorospasm, which, as Hughson has shown, may be caused by irritation anywhere within the peritoneal cavity, there doubtless follows a congestion. If the pylorospasm is excessive and prolonged there may be a hypertrophy of the involved muscle. Hyperemia accompanies increased muscular activity. The hyperemia may accentuate the sensitiveness of the gastric and duodenal nerves even though the mucosa is intact, and the same mechanics of hunger pains would thus occur from pylorospasm as from ulcer. This seems to be the best explanation of the mimicry of hunger pains by extragastric lesions.

Doubtless the tug of a duodenum on an adherent gall-bladder causes irritation of the duodenum and pain by the pull of the gall-bladder, which in its turn may also produce pylorospasm. The duodenum has a rather limited range of motion and any interference with this range is more likely to be resented and to produce symptoms than where the range of motion is free and meets with but little impediment. In the transverse colon or in the jejunum and ileum, adhesions that do not produce obstruction usually give no symptoms, but adhesions about the pylorus or duodenum or about the ileo-colic sphincter, where motion

though essential is more limited, will often give discomfort or pain. In the same manner adhesions about the heart where the motion is essential but limited may produce marked symptoms.

#### HUNGER PAINS FROM EXTRA-GASTRIC CAUSES

Dr. W. H. Higgins, of the Medical Department of St. Elizabeth's Hospital, Richmond, Va., in an excellent paper on hunger pains, reviews 162 consecutive abdominal operations at St. Elizabeth's Hospital in which there seemed to be some symptoms of disturbed digestion. His analysis is as follows:

"In order to determine the relative frequency of this symptom (of hunger pain or food relief) in the more common abdominal diseases, an analysis of 162 clinical histories has been completed. This record comprises all patients with peptic ulcer, chronic cholecystitis and chronic appendicitis operated on at St. Elizabeth's Hospital over a given period. For obvious reasons, it does not include any patients with this diagnosis in whom the condition was accidentally found during a laparotomy for other pathologic changes.

"This series consists of thirty-three cases of chronic cholecystitis, forty-seven of chronic appendicitis, thirty-four of a combined chronic cholecystitis and appendicitis, and forty-six of peptic ulcer. In the clinical questionnaire used at this hospital, the specific inquiry concerning food relief is made and the reply of every patient is recorded. The character of pain complained of varied as widely as that usually found in a corresponding number of patients suffering from uncomplicated duodenal or gastric ulcers. In every instance a minute post-operative note has been made stating in detail the extent of the pathologic changes present as well as a notation on the condition of the other abdominal organs.

"In the first group there were thirty-three cases of chronic cholecystitis. Of these, five, or 15.4 per cent, gave a definite history of food relief.

"In the second group there were forty-seven cases of chronic appendicitis. Of these, seven, or 17.5 per cent, showed food relief.

"In the third group there were thirty-four cases of combined chronic cholecystitis and chronic appendicitis. Three, or 8.6 per cent, gave a history of food relief.

"In the fourth group there were forty-six



cases of peptic ulcer. Of these, twenty-one . . . gave a history of food relief.

"The interesting feature of this summary is the relative frequency of hunger pains in gall-bladder, appendical and duodenal infections. Relief of pain by ingestion of food has been generally recognized as a cardinal symptom of duodenal ulcer, and has served as one of the most important differential points in the diagnosis of this condition. It is rather remarkable that slightly less than one-half of the ulcer cases in our series gave this history. We may assume from this low percentage that a duodenal lesion alone is not the sole provocative factor, and it becomes more apparent when we find the same symptoms in from 8 to 17 per cent of our chronic gall-bladder and appendical cases.

"The age of the patient, duration of the illness, percentage of hydrochloric acid or roentgenologic studies apparently bore no relation to the incidence of this complaint."

It is obvious that the symptom of hunger pain is not solely due to peptic ulcer, and that peptic ulcer does not always cause hunger pains. In this series, 45.6 per cent of our cases of peptic ulcer had hunger pains while this symptom was present in 15.4 per cent of patients with cholecystitis and in 17.5 per cent of cases with appendicitis. There was also a marked difference in cases with adhesions and without adhesions. Of the cases of cholecystitis with adhesions 22.7 per cent had hunger pains, and all of the cases of cholecystitis with a history of hunger pains had adhesions. Adhesions apparently predispose to hunger pains in cholecystitis.

#### GASTRO-INTESTINAL HEMORRHAGE NOT DUE TO PEPTIC ULCER

The mimicry of the symptoms of hemorrhage from a gastric or duodenal ulcer is not infrequent. When blood appears in the stomach or gastro-intestinal tract, there are many sources from which it may come. There may be toxic erosions, as occur after burns. Rose now has shown that injections of certain strains of streptococci often cause erosions or ulcerations of the duodenal mucosa of the rabbit. Certain chemicals or irritating foods may produce gastric or duodenal erosions. The congestion of the gastric veins from enlargement of the spleen or from hepatic cirrhosis and the large varicose veins around the cardiac

portion of the stomach and the terminal esophagus are frequent sources of hemorrhage.

An unusual case of hemorrhage occurred in a patient of mine (Mrs. K. W.) who gave a history of blood in the stools at intervals for several years before admission to the hospital. She became extremely weak, and vomited a great deal though she did not vomit blood. She had been given a blood transfusion, and placed on a milk diet, but without benefit. Physical examination was essentially negative, and gastro-intestinal roentgenologic studies were negative. Laboratory examination showed an extreme degree of secondary anemia and a low leukocyte count. A tentative diagnosis was made of duodenal ulcer. At operation, February 20, 1928, the stomach and duodenum were normal. At the hepatic flexure of the transverse colon was a flat mass, which was also attached to the jejunum. It was extremely vascular. A part of the jejunum and a part of the transverse colon were resected, and the patient made a satisfactory recovery. The tumor was a vascular, degenerating neurofibroma, arising from the transverse mesocolon. The growth had invaded the upper jejunum at one small point, which was the source of the hemorrhage.

#### OTHER SYMPTOMS OF "INDIGESTION"

The other symptoms commonly associated with peptic ulcer are less conspicuous. They consist chiefly of gaseous eructations, nausea with occasional vomiting, and so-called water-brash or heartburn. These are probably from an upset of the motor mechanism of the stomach and intestines, which is really the cause of the great majority of all gastric symptoms. Alvarez, Klein and others have shown that most of the gastric and intestinal peristalsis is due to what Alvarez terms a gradient movement. The stimulus for peristalsis of the stomach arises from the lesser curvature. The rate of contraction at the point of origin of peristalsis in the lesser curvature near the esophagus is distinctly faster than on the greater curvature about the pylorus. Similarly, it is greater in the upper jejunum, being 20 per minute, than in the lower ileum where it is about 11 per minute. Things that tend to upset this mechanism, such as irritation where the rate of contraction is normally low, or depression where it is normally high, may interfere with peristalsis to such an extent as actually to reverse the peristaltic current.

Reversed ripples of peristalsis appear to coincide with nausea and, if marked, vomiting may occur. If there is irritation about the pylorus, the reversed gastric peristalsis may cause regurgitation into the esophagus of the gastric contents and produce symptoms of waterbrash and heartburn. This does not necessarily mean that there is an excess of hydrochloric acid in the gastric juice, but merely that it is present in a region physiologically unaccustomed to the acid. It has been shown that in patients who suffer from heartburn or waterbrash a small sponge introduced into the esophagus and left for a few minutes will, when withdrawn, often show an acid reaction, whereas normally the reaction in this region should be alkaline.

These symptoms of regurgitation, eructation, heartburn and nausea may be produced by the irritation from a gastric or duodenal lesion such as a peptic ulcer at the pyloric end of the stomach or in the duodenum, or they may arise from extra-gastric causes which induce pylorospasm. They may also be due to toxic materials such as products from acute infectious diseases, which tend to weaken the more rapidly contracting sensitive muscles of the upper portion of the stomach and duodenum, while the more hardy muscle which contracts slowly is but slightly, if at all, affected.

#### PYLOROSPASM

The work of Walter Hughson on pylorospasm is interesting. In his experiments on dogs he has shown that there is a tendency to pyloric spasm following an injury to the peritoneum. It is a reflex spasm and the paths of the reflex arc are through the vagus nerve. After inducing the spasm and delayed emptying of the stomach in dogs by creating a lesion in the cecum, he has then caused normal emptying in these animals by resecting the vagus nerve, and finds that removing the branches of the vagus about the middle of the stomach has the same effect as when the nerve is severed immediately on entering the stomach. Not infrequently, according to Hughson, an intensely irritable stomach without a gastric lesion may be relieved by section of the gastric branches of the vagus. In several patients with marked gastric symptoms I have done this after removing the apparent cause of irritation, as a diseased gall-bladder or appendix, and in most of them there has been relief.

As Hughson has pointed out pylorospasm may be induced by a lesion anywhere in the peritoneal cavity. Probably the most common source for such a reflex is the appendix. While many appendices doubtless have been removed without benefit there still remains a definite though small percentage of patients in whom hunger pains and gastric distress form the chief clinical symptoms of appendicitis. The following case illustrates this condition:

Mr. C. B. J., single, age 28, had "stomach trouble" which began about ten years ago. At first the symptoms were loss of appetite and dull epigastric pain with no particular relation to meals. There was decrease in weight. He was given an ulcer diet, with some relief for about a year. Then the epigastric pain became more pronounced, began when the stomach was empty and was usually somewhat relieved by food and alkalies. There was occasional nausea, and a considerable amount of gas. There had been at times slight tenderness in the region of the appendix. The laboratory examinations were negative except for low free hydrochloric acid in the gastric juice, and low total acidity. Roentgenologic examination showed what appeared to be a pylorospasm with a possibility of duodenal ulcer, and definite disease of the appendix. At operation, February 4, 1929, there was no evidence of an ulcer, or of a healed ulcer, either in the duodenum or in the stomach. There was marked pylorospasm, and most of the branches of the gastric vagus nerve were resected. There was a definite chronic appendicitis, and the appendix was removed. The patient made a satisfactory recovery and, when last heard from, three months after the operation, he was symptom-free.

According to Alvarez, there is a reflex connection between the emptying of the lower ileum and the relaxation of the pyloric sphincter. He says, "Just as an emptying of the stomach tends to produce an emptying of the lower ileum into the cecum, so it appears that an early emptying of the ileum may favor an early emptying of the stomach and a slow emptying of the ileum may slow the emptying of the stomach. Considerable experimental work has been done on this subject by Hedblom and Cannon and later by White. They found that in cats they could slow the progress of food through the stomach and small intestines if they irritated the cecum sufficiently with



croton oil. Mild degrees of irritation produce no effect on the emptying of the stomach. Similarly in man much depends on the degree of irritation produced by the lesion, upon the stage in which we find the disease and upon the original stability of the gradient in a particular individual."

The following two cases, from many of this kind that I have had, illustrate the relation between gastric symptoms and extra-gastric lesions.

Mr. M. E. L., age twenty-five, gave a history of "gas on the stomach," dull pain and burning in the epigastrium at intervals, particularly evident about an hour or two after eating. There was no nausea or vomiting. The symptoms had been present about eighteen months. He had lost twenty-five pounds in weight during the past year. There was for a time some improvement on diet, but the symptoms returned and were more severe than ever. Physical examination showed the patient considerably underweight, but the examination was otherwise practically negative. Laboratory examination showed moderate secondary anemia, and was otherwise negative. Roentgenologic examination showed marked hyperperistalsis of the stomach, and a defect near the junction of the first and second parts of the duodenum suggestive of ulcer. A diagnosis was made of duodenal ulcer and secondary anemia. At operation on August 11, 1928, the stomach and first portion of the duodenum showed no lesion. About three inches from the pylorus there was a sharp adhesion to the gall-bladder which pulled the duodenum upward. The gall-bladder and appendix were removed. Both gall-bladder and appendix showed chronic inflammatory changes.

Mr. L. R. G., age twenty-three, was admitted to the hospital as an emergency case with a history of rather sharp pain in the epigastrium beginning six hours before admission. The pain radiated slightly to the right lower quadrant. He was nauseated. There was a history of "indigestion" for a number of years with hunger pains and occasional nausea. He was thought to have peptic ulcer. Physical examination on admission showed the lower right rectus muscle spastic. There was tenderness just to the right and below the umbilicus. The leukocyte count was 10,000, with 90 per cent polymorphonuclears. At operation, April 6, 1929, there was a hernia of the ileum under a

congenital band which was the mesentery to a rather large Meckel's diverticulum. The appendix was acutely inflamed. No evidence of peptic ulcer could be found.

#### CONCLUSION

The symptoms of peptic ulcer are often simulated by other lesions, and occasionally the mimicry may be very confusing. The cardinal symptoms, hunger pain and hemorrhage, are, however, usually associated with other evidence that may lead to a correct diagnosis. In the atypical cases of peptic ulcer in which both hunger pain and hemorrhage are absent, and in cases simulating peptic ulcer, the diagnosis may be extremely perplexing and will require the combination of a careful clinical observation, a thorough laboratory study, and a competent roentgenologic examination, in order to determine the facts.

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## THE FASCIAL SUTURE REPAIR IN HERNIA OPERATIONS.\*

By E. OSMUN BARR, M. D., Washington, D. C.

This particular type of operation for herniae repair is designated as a fascia repair because fascial strips are used as suture material in the operative procedure. The method was devised by Gallie, of Toronto, a professor of surgery in one of the Canadian Medical Schools. Repair by fascia used as suture material is not a new operation for hernia, but this particular method was devised by Gallie after a study in animal transplants of fascia in an attempt to produce a repair that would give a firm, viable support to a weakened area, thus lessening the chance for future recurrences.

*Description:* The description is best approached by using the inguinal hernia as an example. The usual oblique incision for hernia is made, the subcutaneous tissues divided and separated, the aponeurosis incised and opened down through the external abdominal ring. The cremaster muscle is incised, the sac and spermatic cord are exposed. The sac is freed and doubly ligated about its neck, the redundant portion of the sac is excised and the stump of the neck allowed to snap back into the abdominal cavity. Next, the cardinal sutures of forty day chromic catgut (No. 2) are inserted, approximating for transversalis and internal oblique muscles to the shelving border of Poupart's ligament under the elevated cord.

While the surgeon is following out this procedure, his first assistant makes a linear incision along the lateral aspect of the thigh. The thigh opposite the site of operation is usually chosen for convenience in operation. The linear incision extends twenty-five or thirty cm. along the thigh, the subcutaneous tissue is separated and the tensor fascia lata is exposed, from which strips of fascia are removed for suture material. The surface of the fascia lata should be cleaned thoroughly of subcutaneous fat and its glistening fibers shorn clean of all areolar tissue. This is quite

essential for two reasons, namely, (1) to permit free passage of the fascial strip when it is used as a suture, and (2) for the prevention of infection.

Three strips of fascia are obtained from the exposed fascia lata, and, if a strip of fascia is removed with fat and tissue particles adherent to its surface, difficulty will be experienced in using it as a suture. When the strip is drawn through the muscle and the ligament, mechanical obstruction will be produced by the resistant tissues to the protruding pieces of areolar tissue on the fascial strip. This will cause an attempt to force the strip through the resistant tissue by too brisk a pull which tends to break the fascia and to produce a hiatus in the muscle and ligament which might cause a new weakness in that region. Thus, a clean strip of fascia is essential for a nice surgical procedure.

Again, if fat is allowed to remain on the strip, necrosis develops in that fat which offers a frugal field for the growth and development of pathogenic bacteria to involve the transplanted fascia and cause subsequent sloughing of the material, destroying not only the fascial repair but the reasonable chance of obtaining a cure. Therefore, it is necessary that this detail be carefully watched and clear strips obtained.

Usually three strips of fascia are removed, each strip measuring one cm. wide, and twenty cm. long. The strip is threaded in a McArthur needle, or any needle with a large eye, in one of two methods: (1) The end of the strip is drawn through the eye and anchored securely to the main portion of the strip with a fine chromic transfixation stitch; or (2) by drawing the free end through the eye, out beyond the point of the needle, passing the needle point through the fascia strip, looping the threaded end back around the needle eye and locking it with a transfixation stitch of fine chromic. The chief purpose, in any event, is to get a firm anchorage of the threaded fascia in the needle. The unthreaded or distal end of the strip is tied tightly with a transfixation stitch of 00 chromic catgut to prevent the fraying of the fibers. These threaded strips are placed in a warm normal saline solution and kept moistened until they are used.

This procedure of obtaining and threading the fascial strips has been carried on while the surgeon has been following the usual method

\*Read before the District of Columbia Medical Society.



of repair in approximating the muscle and the shelving border of Poupart's ligament with the chromic catgut. The cardinal sutures of chromic catgut having been taken and tied firmly, the fascial suture is introduced in the operative procedure at this point. With the fascial strip as suture material, reenforcing stitches are taken along the line of chromic catgut which was used in bringing the muscle and ligament together. The strip is anchored in the internal oblique or the lateral border of the rectus with a stitch of 00 chromic, and then a running stitch is taken in the conjoined tendon, Poupart's ligament and the muscle alternately. The fascial stitch is anchored in its course through the muscles and ligament with transfixation stitches of fine chromic catgut. In such a manner the strips are transplanted and anchored in the muscle and ligament which play a part in the repair, and in a similar manner these strips may be transplanted in any type of hernial repair. The further steps in the procedure are the usual routine steps taken in the closure of any incision for the repair of herniae. It is not necessary to draw the fascia tightly, as Gallie states that "investigation showed that the solidity of the union of the transplanted fascia to the edges of the gap depended upon the extent to which the former was woven into the latter. If the transplant passed only once or twice through the fascial margins, it usually failed to prevent the edges of the gap from stretching apart. If it is well woven into the edges, however, no separation occurred. The strength of the union also depended on the care with which the portion of fascia was cleared of areolar tissue. Actual scraping and scarification of this part of the transplant produced the best results."

In regard to the tensor fascia lata from which the strips were obtained, interrupted sutures of No. 0 or No. 1 chromic catgut are used to bring the separated edges together and reduce the muscle which tends to bulge through the opening. A continuous stitch of fine chromic catgut is used to close the subcutaneous tissues, and the skin is closed with interrupted or continuous stitches of fine chromic, silk or horse hair. The wound is dressed on the third day and the stitches removed on the fifth day.

*Indications for Operation:* (1) Ventral herniae of the type which occur in large, obese

individuals as result of a previous operation with subsequent loss of support of the abdominal muscles, which is frequently seen in cases with a history of infection and prolonged drainage through the wound following the operation.

(2) In umbilical herniae in individuals with flabby, poorly developed abdominal muscle support, the fascial transplant is useful in forming a re-enforced repair.

(3) Inguinal herniae in which recurrence is a tendency that is hard to overcome. Generally speaking, this procedure is not necessary in the indirect type of hernia because this responds well to the Bassini repair or any of its modifications. However, there are those inguinal herniae which protrude into the scrotum with a massive sac which would be well treated with an insurance of a high factor of permanent repair if the fascial transplant were used. In dealing with the direct hernia where cure is harder to effect and recurrence is a common complication, the radical attempt at repair is surely indicated with a fascial suture used after the method of Gallie. Direct inguinal herniae are real indications for Gallie repair.

(4) Openings other than herniae where the parietal peritoneum cannot be approximated because of destruction, fascial strips are indicated and useful when they are weaved or matted together to form the closure and support of the hiatus thus produced.

*Complications:* Here, mention is made only of those complications which have a direct bearing on the repair with fascial strips. (1) Infection is a very serious complication because it attacks the fascial transplant, causing necrosis and sloughing of a large portion of the strips through the draining wound. Particular care should be taken to avoid contamination from any source in this operation and prevent this complication. (2) Herniation of the muscle through the tensor fascia lata is a complication which has not been seen in fifteen cases but is a skeptical question with which critics of the operation approach the value of the fascial suture. In closing the opening in the fascia with interrupted sutures there is little danger of any sutures breaking and permitting a reseparation of the edges, as the strain is not great and the activity of the thigh is limited by the patient's confinement. Thus, the real complication which is to be guarded

against, which affects the operative result, and which attacks the transplanted fascial strip, making it slough before the other structures are involved is infection. Avoid this local complication and one of the surest steps in affecting a cure of a recurrent or any difficult type of hernia has been made.

*Results:* An attempt has been made to choose cases from the fifteen cases treated that represent the typical ones as mentioned under "Indications." This embraces one recurrent ventral, one umbilical in a very large and obese woman, two recurrent direct inguinal herniae, and one indirect inguinal with protruding sac into scrotum of a fat Italian vendor.

A follow up study of these cases shows a good report, after a period of twelve or more months following the operation. All cases treated by this method have remained cured with one exception. This was in the case of the ventral hernia occurring in an old gall-bladder scar.

Cholecystectomy was done with a complicating infection, necessitating drainage. A ventral hernia was the result in a man of large and obese structure. Fascial repair was attempted, and infection of the wound occurred with sloughing of the fascial strips. While hernia did not recur, this case is carried in the records as improved in a twelve months' follow up.

These results are in cases of a difficult type to effect a cure, and a close follow up is being kept on them.

*Conclusions:* The fascial transplant is a useful method in dealing with those herniae which demand something more than a customary repair. The fascial transplant re-enforces the usual repair with a tissue suture whose tensile strength depends upon its viability. Gallie and Lemesurier, *C. M. A. J.*, 1921, state: "In all the specimens examined the fibres and cells had remained unchanged, and, beyond the transient edema of the first three weeks, showed no evidence of inflammatory reaction," with no evidence of stretching or contracture of the suture itself, and the "strips of human fascia lata, which is the material used by the authors in surgical operations, are stronger than the stoutest kangaroo tendon. Destruction of the normal blood supply and transplantation to another position in the body appears to have no effect on the strength of the suture." This tends to prove that the

fascial suture becomes intimately healed to the surrounding structures, retains its resiliency and strength and actually enhances the resistance and durability of the repaired site by reinforcing the weakness and by supporting the structural repair with a viableness and a tenacity that is found in the fascia of the tensor fascia lata, therefore, making this method a useful means of repairing difficult conditions of herniae.

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### BUTTER IN PSORIASIS.\*

By A. B. GRUBB, M. D., Cripple Creek, Va.

Psoriasis is a chronic disease of the skin. It is characterized by silvery white scales or grayish white scales which are usually very abundant.

While this disease of the skin is found in those of apparently good physical condition, yet Stelwagon and others say that it is generally found in those of poor health and enfeebled constitutions. Stelwagon also says that it is more common in winter than in summer. Many of the lighter cases even disappear in summer only to reappear the ensuing winter, especially the latter part of the winter.

It is a well known fact that most of the people of the poorer class have but little butter toward the end of winter, while many of this same class have none at all. This may account for the disease being more prevalent during the end of winter seasons.

Xerophthalmia has been successfully treated by feeding butter, and I have seen a few cases of the disease which we used to diagnose trachoma respond to butter. These cases, I believe, are also more prevalent at the end of winter while many of the milder cases were no doubt in part classed as "Vernal Conjunctivitis."

There is perhaps an analogy between xerophthalmia and psoriasis, one being a dry scaly skin while the other is a dry conjunctiva and cornea.

Schamberg, a few years ago, was convinced that a high protein diet was one of the causes of psoriasis, and the Mayo Clinic has reported improvement in only part of their cases by diminishing proteins.

McCarty, of Washington, D. C., reports the successful treatment of seven stubborn cases by the intravenous use of a German preparation

\*Read by title at the meeting of the Southwestern Virginia Medical Society in Pulaski, March 25 and 26, 1929.



known as ektobrom which was accompanied by olive oil used locally. Possibly olive oil alone might be of use internally or externally since it is a vegetable fat which contains the same vitamine as butter.

#### CASE REPORTS

CASE 1.—N. W., a girl of about seventeen years of age was covered with scales. She was given Fowler's solution, and various other drugs, but with no improvement. Later she moved from her cabin in the mountains to a large farm where she had plenty of milk and butter. She was soon well, and has continued to be so for eighteen years with the exception of a few scales which appear on her elbows during her nursing periods. During these past eighteen years she has had a very fair diet of animal fats both winter and summer.

CASE 2.—H. B., a man of about twenty-five. His history showed that he had had but little proteins and practically no butter. He was placed on Fowler's solution and a balanced ration, which, of course, included butter, and within a few weeks he was well.

CASE 3.—J. M., a man of about thirty who had had a very stubborn case all winter. The scales covered about one-eight or more of his body. These scales were very dry and crusty and bled over his joints. Inquiry as to his past diet showed that he had not eaten any butter the whole winter, and not very much fats of any kind. His diet was mostly carbohydrates. He was given no therapy except butter, and was about well within two or three weeks, and has been well ever since. Although butter was hard for him to get during the past winter, he had plenty of fat meats.

CASE 4.—Child four years of age. This child was fat and apparently well nourished, but its diet was mostly carbohydrates. Only a few scales were on the child. These disappeared after feeding the child about two weeks on butter, and in this case fat meats were given since butter was hard for the family to obtain.

Although I have only four cases to report, yet the remedy is so simple that I am sure no harm will be done and much good may result from the "butter treatment" of patients suffering with psoriasis.

Two later reports:

W. J., a fourteen year old boy was seen

April 19, 1929. He has had mitral regurgitation for five years and nearly his whole body was covered with the characteristic scales of psoriasis on a red base.

He had not eaten any butter the whole winter, but had had some milk and cream in his coffee, but not in the right quantity.

He ate most of eight pounds of butter from April 19th, until about May 10th. Improvement was noticeable almost from the first. During the first week he began to "shed" his scales, and later the red base became a brown and copper color, and by the end of two months all signs of the condition were gone. The family now has two cows and I do not anticipate a return of his condition.

G. F., a man of about forty was interviewed, who has had psoriasis off and on for nearly twenty years. He has discovered that potatoes with butter cured his condition and he now uses it as a preventive.

#### TORSION OF THE SPERMATIC CORD.\*

By WM. D. GOODMAN, M. D., Washington, D. C.

A review of the literature shows that torsion of the spermatic cord is rare, and seldom diagnosed before operation. Of the thirty-two cases reported, seventeen occurred on the right side, fifteen on the left. Seventy-five per cent occurred in patients under twenty-three, at an age mainly when the individual is most exposed to traumatism.

The exact etiology is really a matter of speculation. The only evident predisposing cause is mal-position of the testicle, either retained in the inguinal canal, or an extremely long mesorchium. The trouble is usually attributed to nothing more violent than some indefinite strain. Most cases give histories of recurrent attacks before strangulation. In the latter case, it may be brought about by some peculiar movement of the body causing the cord to twist the testicle within a loose vaginal sheath. Another factor may be an anomalous arrangement of the muscle bundles in the cremaster.

The symptoms may resemble a strangulated omentum, but usually strangulated hernia. In a typical case there is pain, swelling, tenderness and vomiting, but, unlike strangulated hernia, there is fever and no intestinal obstruction. It may also simulate closely the symptoms of an acute epididymitis.

In diagnosing this condition the history is

\*Read before a Staff meeting at the Emergency Hospital, Washington, D. C.

very important. Palpation may disclose the twisted cord, and in some cases the patient makes the diagnosis himself before he is seen by a physician.

The treatment is an immediate exploratory incision, untwisting the cord, and anchoring the testicle to the dartos of the scrotum. A gangrenous testicle should be removed with the cord up to the internal inguinal ring. Whether the testicle should, or should not, be removed is a matter of keen surgical judgment at the time of operation. If, on the application of hot saline solution, a close scrutiny shows evidence of viability, we should be content to fix the cord and testicle in their proper position, and leave them intact.

The following is a case which came under my observation about eight months ago:

R. S., eighteen years old, family history, negative. Past history, three years ago he was injured in the perineum while playing leap-frog. Two months after this injury, he had an attack of pain in the left side of the scrotum, with some swelling and tenderness about the left testicle, most marked just above the epididymis. There was no nausea, vomiting, or fever during this attack. Patient says he relieved the condition by massaging and untwisting the cord.

The second attack occurred about one month later, with the identical symptoms and again he relieved himself. Then there was an interval of two and one-half years before another attack. This time the condition relieved itself without his help.

Two months later he had another attack, about 1:00 A. M., which was very severe and could not be relieved. There was nausea, vomiting, elevation of temperature, swelling and tenderness of the left testicle. He came to me twelve hours after the onset of this attack and diagnosis was made of torsion of the cord by palpation and history of the case.

Operation was performed immediately and I found the cord to be twisted upon itself three and one-half times mesially. Relieving the torsion and applying hot saline to the cord and testicle, it seemed viable, and I deemed it advisable to treat conservatively, anchoring the testicle to the dartos, sewing up and inserting a small cigarette drain. Recovery was uneventful.

Patient was seen two months ago, that is,

five months after the operation and I find there is some strophy of the affected testicle.

#### REMARKS

This case is very interesting because of its typical textbook picture with a history of four attacks over a period of three years, the first attack following traumatism in the perineum. It is also worthy of note that the patient instinctively relieved his own condition.

The main point to be emphasized is the necessity of an early diagnosis, with immediate operative interference to relieve the strangulation. After twenty-four hours of strangulation, the chances are that the testicle will probably be gangrenous, when a radical operation will be necessary.

*The Farragut Apartment—*

*Seventeenth and Eye Streets, Northwest.*

#### SPINAL ANAESTHESIA—EXPERIENCES WITH NEW AND IMPROVED TECHNIQUE.\*

By HARRY HUDNALL WARE, JR., M. D., Richmond, Va.

The purpose of this paper is to increase interest in spinal anaesthesia, and to present a simple technique developed from observation of more than five hundred cases. The technique to be proposed is essentially that of Labat and Cosgrove, with several modifications.

Spinal anaesthesia, like many other great discoveries, resulted from an accident. Apparently the first reported case was produced by J. Leonard Corning, of New York City, in 1885, while giving a supposed therapeutic extra-spinal injection of cocaine.

Bier, of Bonn, in 1889, introduced spinal anaesthesia as a definite procedure. The name spinal anaesthesia, is really a misnomer as it is more of a regional nerve block. During recent years, Allen, Babcock, Labat, Barker, Cosgrove, and others have developed the technique, so that it is today one of the safest methods of anaesthesia. While not universally adopted in the United States, it is used frequently in several large hospitals distributed in all sections of the country, and has a much more extensive use in the European Clinics.

Many authors advocate the use of spinal anaesthesia in upper abdominal surgery. Our experience is limited entirely to surgery of the abdomen at or below the level of the umbilicus. It is especially satisfactory in gynecology.

\*Read before the Richmond Academy of Medicine, May 28, 1929.



logical and obstetrical operations. Our intra-spinal injections have all been at, or below, the second lumbar interspace.

Spinal anaesthesia has a definite place among the anaesthetics, but is not offered as the anaesthesia of choice for all cases, and it must be employed with discretion.

The indications for its use are determined by:

1. The surgical condition present;
2. The site of the operative field;
3. The age of the patient;
4. The mental and emotional state of the patient;
5. Acute and chronic pulmonary and cardiac conditions;
6. Nephritis, pyelitis, diabetes, and toxemias.

Spinal anaesthesia causes less metabolic and protoplasmic disturbance than any other form of anaesthesia in use at the present time. There is slight, if any, change in respiration, and no irritation of the pulmonary system, decreasing the incidence of acute post-operative respiratory involvement. There is also an absence of cardiac, hepatic, and renal irritation, minimal penetration of shock impulses to the cerebral cortex, and lessened bleeding during operation.

The contra-indications may be summarized as follows:

1. Any marked involvement of the cerebro-spinal nervous system, such as brain tumors, cord tumors, intra-cranial, or intra-spinal hemorrhage, syphilis, and meningitis.

2. Mechanical obstruction or limitation of the respiratory space (pulmonary tuberculosis not included except in the latter stage with extensive bilateral involvement.)

3. Extremely depressed patients, or those in a state of traumatic shock.

4. Septicemic cases with positive blood cultures, because of the danger of breaking down the protective barrier between the infected blood and the nerve centers; for the same reason, tuberculosis of the spine—either acute or healed lesions.

5. Infection or suppuration at the site of the puncture.

6. Hypotension is a debatable contra-indication. Our procedure is to consider hypotension a contra-indication only when the systolic blood pressure is below one hundred m.m. of mercury.

#### *Advantages:*

To sum up the advantages of spinal anaesthesia, some of which have previously been discussed we have:

1. Rapidity of induction of anaesthesia—usually less than five minutes after spinal injection.

2. Complete analgesia with entire relaxation of skeletal muscle in the anaesthetized field, reducing the incidence of trauma and lacerations.

3. Preservation of tone of visceral muscle, reducing the hemorrhage during operation.

4. Reduction of shock impulses to cerebral cortex.

5. Absence of pulmonary irritation—of particular value in acute and chronic respiratory infections, and asthma.

6. Absence of cardiac irritation.

7. Absence of hepatic irritation.

8. Absence of renal irritation—of especial value in acute and chronic nephritis, pyelitis, and toxemias.

9. The intestines are stimulated, and the sphincters are relaxed.

10. The patient is conscious and does not have to dread going to sleep.

11. Food and fluids may be taken until the time of operation, and immediately afterward, unless contra-indicated by the type of operation.

12. Post-operative nausea, vomiting, and distention are decreased. Paralytic ileus is much more rare following spinal anaesthesia than general anaesthesia.

#### *Disadvantages:*

The disadvantages of spinal anaesthesia are:

1. Drop in blood pressure, which can usually be avoided by the proper pre-operative medication and stimulation during operations.

2. Occasionally severe headaches follow spinal anaesthesia. They disappear spontaneously in a few days. Headache can be avoided by careful technique and the use of a small spinal needle to prevent tears of the dura and the loss of excess spinal fluid.

3. The patient is conscious, making it undesirable in neurotic and psychic cases.

4. The duration of the anaesthesia is limited. It cannot be relied upon for more than forty-five minutes, but often there is complete relaxation for more than sixty minutes. When it is necessary to supplement the spinal anaes-

thesia with a general anaesthesia very little general anaesthesia is needed.

5. Rarely transient paralysis or paresthesia lasting several weeks. This can be avoided by care in selecting the proper needle and making the puncture.

6. Injection of foreign material into the spinal canal with accompanying danger of infection; this is reduced to a minimum by using novocain crystals dissolved in spinal fluid.

*Important points and procedure:*

The routine recording of the patient's blood pressure, pulse and respiration on admission and with each medication is essential, along with a complete history and physical examination. We have found that blood pressure varies considerably, due to various drugs used, and to the mental state of the patient.

Our pre-operative routine is as follows:

The spinal anaesthesia is discussed with the patient, and its advantages are pointed out. This quiets the patient and allays the fear of the operation.

The night before operation the patient is given ephedrine sulphate, gr. 1, orally.

Two and one-half hours before operation, morphine sulphate gr. 1/6.

Thirty minutes before operation: Morphine sulphate gr. 1/6. Atropine sulphate gr. 1/150. Ephedrine sulphate grs.  $\frac{3}{4}$  (1 Amp.)

Immediately after the spinal injection: Ephedrine sulphate gr.  $\frac{3}{4}$  (1 Amp.)

Fluids may be administered to the patient in small quantities until the time of operation, unless contra-indicated by type of same. A cup of hot coffee is especially beneficial.

The patient should not have an enema within three hours of the time of operation. The patient's eyes should be covered with a pair of dark glasses before he is sent to the operating room. Excitement and noise in the operating room must be reduced to a minimum.

*Items for Spinal Anaesthesia:*

Novocain solution 0.05 per cent, 5 c.c. for local infiltration of skin and interspinous ligament.

Novocain crystals, 100 mg., in sterile sealed glass ampules (Metz & Co.)

Ephedrine sulphate, 2 ampules, 1 c.c. ( $\frac{3}{4}$  gr.) each.

Caffeine sodio-benzoate, 1 ampule, gr. 3 or 4.

Adrenalin solution (1-1000), 1 c.c.

Tincture of iodine, 5 per cent, 1 ounce for preparing field.

Alcohol, 70 per cent, 1 ounce for preparing field.

Two (2) spinal needles (rustless steel). Quincke model. B. D. Special:

One 3-inch—20 gauge.

One 3½-inch—20 gauge.

Two (2) hypodermic needles (rustless steel):

One 1-inch—23 gauge for infiltrating skin and interspinous ligament.

One 1½-inch—20 gauge, for mixing spinal fluid and novocain crystals.

One syringe (glass) 5 c.c. for infiltrating skin.

One syringe (glass) 2 c.c. for mixing and injecting novocaine.

One small metal file.

The needles should be made of rustless steel, and those for local infiltrations should be 23 or 25 gauge. The spinal needle should have a small caliber, 20 or 22 gauge, and the bevel should be 45°. The smaller the caliber, the less trauma to the tissue and loss of spinal fluid, and the less post-operative backache and headache. The syringes should be of an all glass type, preferably having some locking device such as Luer Lox, but this is not absolutely necessary.

Care must be exercised while giving the spinal injection, because of the danger of removing the spinal needle from the spinal canal. If the needle is in the canal, the spinal fluid flows back in the syringe easily when the piston is withdrawn gently.

To prevent shock and minimize the drop in blood pressure, the pre-operative medication should be carried out carefully, and the operating room nurse should keep ready for use:

One syringe containing 1 c.c. ( $\frac{3}{4}$  gr.) ephedrine;

One syringe containing 1 c.c. of adrenalin solution (1-1000);

One syringe containing 1 c.c. of caffeine sodio-benzoate.

As in all modern operating rooms, an intravenous outfit and warm physiological saline solution should be ready for immediate use in case of necessity.

In our series of cases, which we will report in detail later, we have not considered it necessary to resort to intravenous saline during the operation in any instance.



## POSTURE

The patient is turned on his left side, lateral prone posture, with legs, thighs, and head well flexed. The more convex the curvature of the dorsal surface of the spine, the more easily the needle may be introduced in the spinal canal. This posture can be attained with more ease by having an assistant to steady and help the patient. It is necessary that the transverse plane of the patient's back be perpendicular to the operating table. The shoulders and hips should be in a parallel plane and the patient's back close to the edge of the table.

With the patient in position, the skin over a wide area—6th thoracic vertebrae to sacrum—is painted with 5 per cent iodine solution. After drying, this is removed with 70 per cent alcohol, and the field draped with four sterile towels.

The spinal column is outlined and the crest of the ilium is identified. A line joining the crests of the ilium will usually pass over the fourth lumbar spine and the interspace will be found just below this. With this as a landmark, the space for the puncture can be selected.

## INJECTION

With a 5 cc. syringe, small needle, and 0.05 per cent solution of novocain, a skin wheal is infiltrated over the interspace selected. The needle is introduced deeper and the area down through the interspinous ligament is anaesthetized. Usually from 2 to 3 c.c. of the novocain solution is used.

The spinal needle (usually 20 gauge—3-inch—Quincke needle), with stylet in place, is next introduced in the wheal over the interspace. The needle should be introduced perpendicularly to both the longitudinal and transverse planes of the spine at the level of the injection. When the dura is punctured, there is a slight snap (recognized with experience) and the needle encounters less resistance. Avoid having the needle to pierce the opposite side of the canal, or come in contact with the opposite side of the vertebrae.

When the dura has been entered, the stylet is removed and spinal fluid should flow through the needle. If no spinal fluid appears, rotate the needle on its own axis, or withdraw it gradually a little. If there is still no flow, insert the needle a little deeper. The stylet should be replaced each time before any manipulation of the spinal needle. Occasion-

ally the first two drops will be blood tinged. If the bleeding ceases, the spinal fluid may be collected; if it persists, the needle should be withdrawn and introduced at another interspace. The injection for spinal anaesthesia should never be made until clear spinal fluid has been obtained for dissolving the novocain crystals.

When clear spinal fluid flows through the needle hold the ampule (the top of which has been filed off) containing the novocain crystals under the needle so as to collect the drops of spinal fluid. We usually collect thirty drops to dissolve 100 mg. of anhydrous novocain crystals. As soon as the desired quantity is collected, replace the stylet so as to avoid the loss of spinal fluid. With a 2 c.c. syringe and a 1½-inch, 20 gauge, needle, to mix the contents of the ampule, the novocain is rapidly dissolved in the spinal fluid. The solution is drawn in the syringe and the syringe adjusted to the spinal needle. Gently withdraw the plunger of the syringe; if the spinal fluid returns, the needle is still in the canal. Slowly inject the solution. This should require one to two minutes. When the amount of novocain to be injected is less than the amount in the ampule used, it is best to dissolve the total amount in spinal fluid, calculate the number of drops to contain the desired dose, and discard the amount not needed before adjusting the syringe to the spinal needle.

Immediately after injecting the spinal canal, remove the needle and cover the site of the puncture with tincture of iodine, followed by collodion. Turn the patient on his back, put a pillow under his head, and keep the table flat. An assistant should record the patient's pulse and blood pressure every five minutes.

The patient should be draped immediately and the operation commenced. The anaesthesia is usually complete in five minutes after injection.

If the patient has a drop of fifteen points, in blood pressure, give adrenalin solution (1-1000), three minims, intramuscularly, and caffein sodio-benzoate, grs. 4, subcutaneously. Ephedrine sulphate one ampoule (gr. ¾), should be given intramuscularly.

With the type of anaesthesia used by us, a moderate Trendelenburg position may be maintained fifteen minutes after the spinal injection.

No attempt is made in this paper to give an

analysis of the different drugs used in spinal anaesthesia, or their physiological action. Any good pharmacology and physiology may be consulted for this data. Evans' "Spinal Anaesthesia" has a chapter devoted to the drugs used, and their action, and is well worth studying.

Anhydrous novocain crystals in sealed sterile ampules (H. A. Metz & Co., N. Y.) are used routinely by us because novocain is the least toxic and most effective drug among the list employed for spinal anaesthesia at present, and the crystals dissolved in the patient's spinal fluid reduced to a minimum and foreign substance injected in the spinal canal. The novocain is absorbed rapidly and with no apparent toxic effect upon the patient.

The ampules containing novocain crystals are easily obtainable, and several should be kept submerged in a jar of alcohol, ready to be removed for immediate use. Ephedrine sulphate is an active alkaloid principle derived from MaHuang, which is indigenous in China, and has been known in Chinese medicine for more than five thousand years. It is a powerful stimulant of the sympathetic nervous system and raises blood pressure in this way. Ephedrine is effective on oral as well as subcutaneous administration. It has a more sustained effect upon the blood pressure than adrenalin, and in the doses used by us has produced no toxic effects. Adrenalin apparently acts with more rapidity and is given in small doses, minims 2 and 3, when a rapid stimulation of the blood pressure is desired. Larger doses of adrenalin apparently give no more rapid stimulation, but exaggerate the shock when they wear off. Caffein sodio-benzoate stimulates respiration and gives the patient more of a feeling of well being. It is particularly beneficial for those who develop a pallor shortly after the spinal injection, or appear to be poor risks before operation.

In our more recent cases we have been able to keep the blood pressure just about the base level, or level before any stimulation was given, by the use of ephedrine before and during operation.

Patients with high blood pressure usually have a more pronounced drop in their blood pressure. Patients with low blood pressure usually have a very slight drop. The maximum drop is usually seen in ten to fifteen minutes after the spinal injection.

Spinal anaesthesia has a particular ad-

vantage in operative obstetrics, because it apparently does not affect the baby, and respiration in the baby is usually more quickly established than with any other anaesthesia. The tone of the uterus after delivery is better than after a general anaesthetic. Small amounts of novocain, usually 50 mgs., are sufficient for complete anaesthesia for forceps and repair of lacerations of the cervix, vagina, and perineum.

*Stuart Circle Hospital.*

## JUDAS—MEDICAL ROBOTS.

By A. F. WOOD, M. D., Parksley, Va.

Since the era of Hippocrates and Socrates, 460-399 B. C., the philosophy of life and science of medicine has had its foundation. The coincident truths taught by these two have constituted the morning and evening star of hope of the real physician—as acquisition of the true art of medicine spontaneously develops true philosophy—stimulating him to never-ending study and endeavor in his efforts in acquiring knowledge and understanding worth while, to direct him in alleviation of human distress, pain and disease. No beaten path has been followed, but every route has been trod, all areas surveyed and many crevices searched. But only the outstanding truths have been appropriated of all knowledge discovered, until today thanks to loyalty and industry, our healing art very closely approximates an exact science. To my mind the history of medicine records the most thrilling adventures in all the field of human endeavor, not equalled by that of soldiers, explorers, statesmen or others. At every stage a battle has had to be fought to a finish, in importance to society at large greater than any social engagement of ancient or modern warfare. The intrinsic fact is that in all of these stormy contacts, the host of disease was met and vanquished single-handed by a loyal medical scientist who hastily revealed his tactics and end-results to all mankind.

So it is today, and ever will be. We leave one battlefield and march on to another, happy in the certitude of accomplishment. There are unsung martyrs strewn along this tragic and glorious path, and heroes galore.

But, what of the maligners and deserters? Well, they have marched along with us, in our protected rear ranks since we began the advance. Never participating in a test, but ever on hand after the mopping up to share in any



reward or seize any opportunity that may present. These, with slackers, are they whom we designate charlatans for want of a better term and from reluctance in using a worse. This appellation is accepted by the profession and should fulfill its definition.

We need not consider the quacks, cults and nostrum venders, for society and legal statutes repudiate them. They are outsiders, and as easy of detection as their blood brothers who are parasitic on other professions and arts and are commonly referred to as shysters, jacklegs, bootleggers and what not.

It is hard to discuss our charlatans in terms of polite and refined social usage, but I will do my best. While these charlatans may be detected in all ramifications of the healing art, their principal habitat is a smooth sailing specialty boat navigating a dark stream. Since quitting their respective institutions of exact information, they have dropped all effort at acquisition of useful knowledge, and at the beginning of their work they have become parasitic on life's strong oak. Science fades from their mental horizon and becomes only a dim memory. Their indifference to intellectual improvement obstructs constructive and sustaining effort in any other useful field. And, so, they continue in their constricted sphere, lethargic to the extent that even thinking of effectual labor becomes an obnoxious burden to their emaciating minds, and they turn in their extremity to paths of least resistance.

As before mentioned, the easy specialties furnish them their ideals. They lack not business acumen, so they acquire and furnish an office, decorate it with bright lights, devices and signs and buttons, install various mechanical apparatuses whose complicated insides are so geared by man that they may be manipulated by the difficult procedure of digital switch pressure. These robots part their hair in the middle from behind straight down to the front (here accuracy counts), throw wide the portal of their gilded parlors to innocent public moths, and the shearing begins.

The crowd becomes processional to these meccas of youth and health. Once the promised restorative drama begins, the concentration and diagnosis (regarded as of minor importance) is left to the patient; the intelligent apparatus administers the therapy, and if the patient cannot reach the button a friend might perform the function.

Consideration here leaves us in some doubt as to exactly where the medical graduate appears in the picture. We ponder and a great light registers, an afferent impulse has whispered, "Press Agent."

Now we cannot deny the value of these instruments, used in occasional isolated and selected cases, but we might be reasonably pardoned for resenting the revolting imposition on a gullible public of a panoramic view of a field of therapeutic efficiency urged upon them by these button pushers.

The regular physician knows this field as such does not exist, and can we imagine the savant who, at the culmination of research in the spectral field, in his most buoyant moment of success in achievement, visualizing the employment of the ultra violet ray in dissolving and dissipating stones, unraveling kinks in intestines and lining up cogs in ungeared minds? Such are the claims of insidious advertising.

Yet, the less the understanding of the layman of the *modus operandi* of a vaunted cure, the blinder his faith and stronger his trust.

There is some compensation in the knowledge that disillusion comes to them shortly and they will ultimately seek the benevolent counsel of a regular doctor.

My practice being confined to a rural-town section, of necessity my experience with this type of irregular practitioner is limited. Therefore, I have delineated what I trust are mild instances. There may be less pernicious examples; worse would be difficult to conceive.

They may be recognized by their Bertillon symptoms with other objective signs. Their finger prints will appear under microscopic scrutiny. Subjective symptoms there are none.

How may we curb this malady, fast assuming epidemic form and which will certainly become pandemic? Its practice has sufficiently relieved its operators of pangs of conscience, and, carried to the *n*-th power, it might be used to cure the public of the fatal consequences of their follies. Then, where would *we* be at? The result would cause little use for preachers, lawyers or doctors. We can realize *some* advantages that would accrue from such an ideal state of affairs; also, the preachers and doctors could go to work and make a living.

But can this activity be controlled? Ostracism might be suggested. But is it tenable? Is it the most efficient rust-proof instrument

within our reach? We know it as an ancient and clumsy tool, but metamorphoses are the rule in medicine, and we might change its design and lustre by close thought, and make it work. At every turn we perceive unexpected difficulties in resorting to this measure, for these self-sufficient gentlemen have a monumental egotism. They set themselves so high up on a pedestal of their own esteem that they not only reject all consideration of the value of our advice, but audaciously contemplate numbering among their cases patients referred by physicians. Stentor like, they proclaim their own virtues and drown all other sound. They are shrewd and crafty and lack not a knowledge of their most expeditious course. The very nature of their perpetrations force them to pad lone trails, the mighty dollar being the lure leading them into nooks and corners in a wilderness of misunderstanding. Their diplomas are mighty shields that protect them from legal entanglements, and embarrassing alliances they have none. From a loyalty standpoint in their own emotions, that emblem that *we* value as a badge of merit, bestowed upon us by learned and honored preceptors in recognition of a good beginning, is but a scrap of paper. But they recognize its advertising possibilities and ruthlessly employ it for this degraded office.

Again, what is the remedy for this evil? Fumigation, or lethal gas? The former is an almost discarded measure, but it is of proven value when directed against rodents, causing them, at least, to change their quarters from one burrow to another, though we may doubt that extermination results. Lethal gas here (talking) has been worked to a "frazzle."

So, who knows? At least I am agreeable that the Board of Health take charge of the situation.

But, withal, a poor prophet may envision in the unobstructed progress of medical science, one hundred years hence, a race of men far in advance of the world today in physical and intellectual stature, with double the statistical limits imposed in this era.

And have we no reward? If we can only grasp the truth that nature is prodigal in her gifts to deserving merit! The consciousness of rectitude with which one can lay down and sleep, unashamed, with naught to fear, is worth all of brigand gold. The simple gift of a clear

conscience cannot be purchased by the wealth of a million Fords.

I recall an old preceptor whose loyal deeds have been poorly rewarded and barely appreciated through a life time of service to medicine and mankind. I met him for the last time in his office in the Medical College building. We spoke of old times and mentioned rewards. I told him my whole medical foundation took form at his feet twenty-seven years ago; that, under the magic touch of his hands, guiding crayons, clay and scalpel, with the studied and deliberate explanations of his stuttering tongue, I had viewed the human body in its creation, with its innermost physical mysteries revealed.

This grand old man shed a tear and replied, "Well, Wood, what more reward could one desire?" He thought not of me individually, but of the thousands who had likewise benefited from contact with him. Philosopher, artist, scientist, scholar, physician, fellowman—the antithesis of our subject—John!

#### INDIVIDUAL HEALTH DEPARTMENT.\*

By E. B. COXWELL, Roanoke, Va.

Director, Department of Physical Education, Roanoke, Y. M. C. A.

There was a long period of time in which it was rather difficult to classify physical education. Certainly during its early infancy the educators must have protested any claim of relationship. And may I say by way of parenthesis, having served part of my apprenticeship, that the methods generally employed in medicine a quarter of a century ago would cause you to frown.

Physical education, like other professions, has raised its standards and requirements, and today we have in our ranks P. H. D-s. and M. D-s. who do credit to the field of education. Men like McKenzie, of Philadelphia, McCurdy, of Springfield, Sargent, of Harvard, Steinhaus, of Chicago, and a host of others, are familiar names almost the world over.

Today a graduate of physical education from our best colleges either has or is within a year or less of his A. B. or B. S. degree, and one, two, and in some cases three years of his M. D. These degrees are available through such Universities as Vanderbilt, Chicago, and, I understand, Harvard and Yale, besides a large number of others.

I hope no one thinks from what I have said that our profession is free of quackery any

\*Read before the Roanoke, Academy of Medicine.



more than is medicine. We have a few "neck breakers" to deal with where you have to contend with spinal adjusters, and, may I add, our friends get the same kind of reception as do yours.

Passing hastily now to the main point of my paper. Physical education today consists of *active* and *passive* forms of exercise. I cannot conceive of the time when we shall minimize the value of camping, swimming, gymnastics, play-life and a vast number of other active forms of exercise, but it is to the passive form which I wish to direct your attention.

Passive exercise is fulfilling a great need in the lives of men who cannot, because of infirmities of one nature or another, participate in active exercise. During my brief stay in this city I have learned to know and respect several of you physicians. Some half a dozen are active in our gymnasium work. I believe it has been through these contacts that men like Drs. Lawson, Whitman, Johnson, Jackson, and others have referred patients to us for exercise.

I know of some, and no doubt there are other physicians who have patients that need exercise but who cannot stand strenuous activity. For such men we have at your disposal one of the best equipped departments in the South. We term this The Individual Health Service Department—for the sick and convalescing we will handle only under the direction and prescription of physicians.

You know the value of sweat baths and heat for chronic lumbago and neuralgic conditions, especially when followed by massage. There are other cases of which you are far more capable of evaluating such treatment than I.

Our equipment consists of an electric bath cabinet, hydro-therapy cabinet, tables, infra-red and ultra-violet lamps, and dressing and rest booths.

We are catering to those who are well and strong, and who appreciate the mental and physical relaxations to be derived from a Turkish bath, and the like.

In conclusion, may I extend you a welcome to come in and inspect our new department, and if we can serve you and your practice, I assure you your prescriptions will be carried out carefully and thoroughly.

## Medical News of the Past

### The Former Medical Society of Virginia.

Prior to the organization of our present State Medical Society, there existed a society in Virginia, which was known as the Medical Society of Virginia. It was chartered under this name in 1823. It then held its meetings in the Hall of the Richmond Library Association, the annual meeting being on the third Tuesday in May. We have little information in regard to the organization at this time, except that it ceased to function at some time during the fifties.

Our informant gave us the following as list of officers of the organization in 1852:

President—Dr. B. R. Wellford.

Vice-presidents—Drs. James Beale and C. P. Johnson.

Recording Secretary—Dr. P. Claiborne Gooch.

Corresponding Secretary—Dr. W. D. Haskins.

Treasurer—Dr. James Bolton.

Librarian—Dr. Wm. J. Clarke.

Assistant Librarian—Gabriel Ralston.

Committee on Publication—Drs. G. A. Wilson and A. E. Peticolas.

Our present Medical Society of Virginia was organized at a meeting held in Richmond, November 2, 1870, and applied for and received a charter following that date.

## Proceedings of Societies

### Virginia State Board of Medical Examiners.

At the examinations held by the Virginia State Board of Medical Examiners, in Richmond, June 18-22, 110 applicants were granted certificates to practice in Virginia on the basis of examination and 16 were licensed through endorsement. Those licensed by examination are:

Dr. G. A. Andrews, Mt. Gilead, N. C.

Dr. C. L. Baird, Buckingham, Va.

Dr. H. H. Ballard, Peterstown, W. Va.

Dr. J. T. Barnes, Kenly, N. C.

Dr. S. O. Bennett, Gretna, Va.

Dr. W. G. Bishop, Galax, Va.

Dr. E. D. Blackman, Newport News, Va.

Dr. Rex Blankinship, Naruna, Va.

Dr. J. W. Bolen, Jr., Galax, Va.

Dr. C. H. Bondurant, Roanoke, Va.

Dr. Thomas Bradley, Washington, D. C.

Dr. J. R. Brown, Huntington, W. Va.

Dr. Margaret Buckner, Cynthiana, Ky.  
 Dr. O. K. Burnette, Leesville, Va.  
 Dr. F. L. Byers, Harrisonburg, Va.  
 Dr. A. R. Carter, Dry Fork, Va.  
 Dr. A. N. Chaffin, Wytheville, Va.  
 Dr. A. C. Chandler, Kittyton, Tenn.  
 Dr. A. B. Choate, Huntersville, N. C.  
 Dr. L. N. Claiborne, Waynesboro, Mo.  
 Dr. H. R. Coleman, Jr., Collierstown, Va.  
 Dr. C. C. Cooley, Phlegar, Va.  
 Dr. S. L. Cooke, Sandy Level, Va.  
 Dr. E. L. Copley, South Hill, Va.  
 Dr. F. D. Costenbater, Norfolk, Va.  
 Dr. A. D. Daughton, Falls Church, Va.  
 Dr. A. C. Davis, Roanoke, Va.  
 Dr. A. R. Dawson, Reedville, Va.  
 Dr. R. M. DeHart, Blacksburg, Va.  
 Dr. A. McG. Duval, Roadsville, Va.  
 Dr. W. J. Ellis, Crooksville, Ohio.  
 Dr. D. V. Estill, Meadow View, Va.  
 Dr. C. D. Farrow, Fife, Va.  
 Dr. N. P. Pitts, Rocky Mount, Va.  
 Dr. M. M. Fliess, Clifton Forge, Va.  
 Dr. E. S. Frazier, Greenville, Ky.  
 Dr. T. I. Gandy, Ettrick, Va.  
 Dr. R. D. Garcin, Jr., Richmond, Va.  
 Dr. T. G. Gaskins, Bridgeton, N. C.  
 Dr. Arthur E. Glover, University, Va.  
 Dr. W. A. Graham, Hillsboro, Ky.  
 Dr. J. M. Green, Quitman, Ga.  
 Dr. J. H. Greene, Clark, Ala.  
 Dr. C. Y. Griffith, Hague, Va.  
 Dr. C. S. Groseclose, Ivanhoe, Va.  
 Dr. D. O. Hamblin, Providence, R. I.  
 Dr. C. L. Harshbarger, Rockingham Co., Va.  
 Dr. W. F. Hatcher, Clifton Forge, Va.  
 Dr. T. W. Heironimus, Jr., Grafton, W. Va.  
 Dr. O. L. Hite, Virgilina, Va.  
 Dr. L. W. Holladay, Durham, N. C.  
 Dr. H. H. Holt, Washington, D. C.  
 Dr. B. A. Hopkins, Buffalo Ridge, Va.  
 Dr. G. W. Horsley, Richmond, Va.  
 Dr. T. N. Hunnicutt, Jr., Newport News, Va.  
 Dr. W. C. Hutcheson, Boydton, Va.  
 Dr. T. H. Hutchinson, Wise, Va.  
 Dr. J. M. Jabbour, Roanoke, Va.  
 Dr. C. F. Johnston, Bluefield, W. Va.  
 Dr. T. E. Knight, Whaleyville, Va.  
 Dr. F. E. LaPrade, Republican Grove, Va.  
 Dr. Thomas C. Lawford, Nuchols, Va.  
 Dr. M. H. Legum, Norfolk, Va.  
 Dr. H. S. Martin, Selma, Ala.  
 Dr. R. W. C. McClanahan, Roanoke, Va.  
 Dr. E. M. McDaniel, Fafetteville, N. C.  
 Dr. C. D. Moore, Cambria, Va.  
 Dr. J. M. Moore, Petersburg, Va.  
 Dr. J. E. Nance, Linwood, N. C.  
 Dr. C. A. Nunnally, Cumberland, Va.  
 Dr. Paul Otto, Reading, Pa.  
 Dr. N. G. Patterson, Staunton, Va.  
 Dr. B. L. Parrish, Richmond, Va.  
 Dr. M. B. Payne, Clifford, Va.  
 Dr. T. B. Payne, Stafford, Va.  
 Dr. B. F. Pearce, Princeton, N. C.  
 Dr. R. T. Peirce, Jr., Newport News, Va.  
 Dr. Geo. D. Pettitt, Clifton, N. C.  
 Dr. J. A. Pilcher, Jr., Roanoke, Va.  
 Dr. W. G. Preas, Johnson City, Tenn.  
 Dr. J. P. Pregnall, Monroe, N. C.  
 Dr. R. M. Reynolds, Norfolk, Va.  
 Dr. J. S. Richardson, White Gate, Va.  
 Dr. D. W. Ritter, Winchester, Va.  
 Dr. C. R. Robins, Jr., Richmond, Va.  
 Dr. J. H. Robinson, Shinnston, W. Va.

Dr. W. L. Robinson, Ivy, N. C.  
 Dr. T. R. Rolston, Staunton, Va.  
 Dr. P. Ryland, Jr., Clarendon, Va.  
 Dr. C. L. Savage, Portsmouth, Va.  
 Dr. W. A. Seawell, Lemon Spring, N. C.  
 Dr. H. A. Shaffer, Parsons, W. Va.  
 Dr. D. M. Shevitz, Smolowitz, Russia.  
 Dr. R. R. Sisson, Bedford, Va.  
 Dr. T. M. Sloan, Charlotte, N. C.  
 Dr. F. I. Steele, Bower, W. Va.  
 Dr. W. C. Stephenson, Jr., Roanoke, Va.  
 Dr. W. P. Stull, Lexington, Ky.  
 Dr. S. D. Sutliff, Jr., Shiffensburg, Pa.  
 Dr. E. T. Terrell, Jr., Fredericks Hall, Va.  
 Dr. R. C. Thomason, Roanoke, Va.  
 Dr. Wm. Tomlinson, Jr., Richmond, Va.  
 Dr. J. I. Turberville, Century, Fla.  
 Dr. C. M. Turman, Jr., Hillsville, Va.  
 Dr. R. L. Waddell, Scottsville, N. C.  
 Dr. J. D. Ware, Norfolk, Va.  
 Dr. H. B. Weinberg, Petersburg, Va.  
 Dr. B. W. Wilkinson, Cottagesville, W. Va.  
 Dr. E. G. Winstead, Ransomville, N. C.  
 Dr. P. H. Winston, Virgilina, Va.

The following applicants were granted licenses through endorsement:

Dr. Aubrey W. Armentrout, Roanoke, Va.  
 Dr. C. S. Greham, Leona Mines, Va.  
 Dr. H. L. Hamilton, Washington, D. C.  
 Dr. J. T. Jackson, Leesburg, Va.  
 Dr. D. C. Keister, Tannersville, Va.  
 Dr. F. L. Lander, Jr., Charlotte, N. C.  
 Dr. Harry Meyer, New York, N. Y.  
 Dr. W. H. Montague, Baltimore, Md.  
 Dr. R. A. Pogue, Covington, Va.  
 Dr. H. W. Rollings, Jr., Wardensville, W. Va.  
 Dr. E. G. Scott, Lynchburg, Va.  
 Dr. M. L. Steele, Bower, W. Va.  
 Dr. Caleb S. Stone, Jr., University, Va.  
 Dr. R. B. Wilson, Jewel Ridge, Va.  
 Dr. Theodore Wollak, Baltimore, Md.  
 Dr. D. D. Young, Washington, D. C.

#### **Bedford County Medical Society.**

Dr. G. E. Heller was host to the Bedford County Medical Society at a supper on the occasion of their regular quarterly meeting held at Bedford, July 2, 1929. The most important action of the meeting was the election, as auxiliary members of the society, of the druggists and dentists of the county. Interesting talks were made by Drs. F. O. Plunkett and Dwight L. Rivers, of Lynchburg, and Ennion G. Williams, Richmond.

The following are the officers for the coming year: President, Dr. T. P. West, Bedford; vice-president, Dr. M. W. Gibbs, Bellevue; and secretary, Dr. R. A. Bennett, Bedford. The delegate and alternate to the Charlottesville meeting of the State Society were also elected at this meeting.

#### **The Mid-Tidewater Medical Society**

Met at Saluda, Va., the latter part of July, for its regular quarterly meeting. Dr. Hawes



Campbell, of Enfield, the president, was in the chair. After a business session at which delegates to the Charlottesville meeting of the State Society were elected (these will be named in a later issue), the visiting doctors were entertained at a splendid dinner at Hotel Bristol by the local doctors.

At the afternoon session, a paper was read by Dr. James D. Clements, of Ordinary, his subject being Ileocolitis. There was a general discussion of this paper, led by Dr. William Gwathmey. The outstanding thought brought out in this discussion was the fact that there has been a marked diminution in the incidence of the diarrheas during the summer as a result of improved sanitation. Dr. E. G. Harper, of Richmond, read a paper on Tuberculosis in Children, bringing out many features of interest on this subject.

The next meeting is to be held on the fourth Tuesday in October at Gloucester C. H., Va., at which time an interesting program is expected. Dr. M. H. Harris, West Point, is secretary of this Society.

## Woman's Auxiliary, to the Medical Society of Va.

### Annual Report of Post-Graduate Medical Auxiliary.

The present officers of the Post-Graduate Medical Auxiliary went into office at the January meeting. As we have only four meetings a year we have accomplished very little.

We have sent six subscriptions of Hygeia to the schools of Petersburg and one to Hopewell, and we are in hope of getting more subscriptions, as our chairman, Mrs. Lane Elder, is working very hard.

With the help from the Blackstone ladies we bought eight goose neck lamps for the Petersburg Hospital and four for Hopewell Hospital. We also sent to the Petersburg Hospital through the committee on hospital supplies, a complete layette and thirty comfort pillows with sixty pillow cases.

Mrs. Hoy, corresponding secretary, has sent cards of sympathy and sick cards to those members who were in need of such.

At the April meeting, Miss Alice Duggar, Red Cross Health Nurse, gave a very interesting talk on "The Visiting Nurse" or "Public

Nursing Service." A committee was formed to study the situation more closely to see if it would be advisable for us to sponsor such a movement.

Our Auxiliary always entertains the graduating nurses and the staff of the Petersburg Hospital in May. Plans have already been made for such a meeting, entertaining not only the nurses but the doctors and wives of the Post-Graduate Auxiliary.

We have one new member, making a total of twenty-five paid members to date.

Respectfully submitted May 9, 1929.

KATHERINE S. JONES,  
(Mrs. H. C. Jones),

*President Post-Graduate Medical Auxiliary.*

PAID MEMBERS TO DATE OF POST-GRADUATE MEDICAL  
AUXILIARY.

Mrs. C. T. Jones	Mrs. George Reese
Mrs. Meade Edmunds	Mrs. W. P. Hoy
Mrs. Herbert Jones	Mrs. E. S. Gunn
Mrs. Bolling Jones	Mrs. T. F. Jarratt
Mrs. E. J. Nixon	Mrs. J. A. B. Lowry
Mrs. Wm. B. Mellwaine	Mrs. D. L. Elder
Mrs. D. C. Mayes	Mrs. R. H. Manson
Mrs. E. W. Young	Mrs. R. T. Hawks
Mrs. Wright Clarkson	Mrs. C. C. Tucker
Mrs. F. J. Wright	Mrs. J. H. Parker
Mrs. G. S. Fultz	Mrs. W. C. Webb
Mrs. H. M. Snead	Mrs. P. Jacobson
Mrs. W. A. Reese	

## The Truth About Medicine

In addition to the articles enumerated in our previous letters, the following have been accepted:

Ciba Co., Inc.  
Isarol—Ciba  
Deshell Laboratories  
Petrolagar with Milk of Magnesia  
G. D. Searle & Co.  
Sulpharsphenamine—Searle, 0.1 Gm. Ampules  
Sulpharsphenamine—Searle, 0.2 Gm. Ampules  
Sulpharsphenamine—Searle, 0.3 Gm. Ampules  
Swan-Myers Co.  
Canada Blue Grass Concentrated Extract—Swan-Myers  
Parke, Davis & Co.  
Ampoules of Pitocin  
Ampoules of Pitressin

### NEW AND NONOFFICIAL REMEDIES

Tablets Theocin Soluble, 2½ grains.—Each tablet contains 2½ grains of theocin soluble, formerly called theocin sodium acetate (New and Nonofficial Remedies, 1928, p. 424.) Winthrop Chemical Co., Inc., New York.

Perfringens Antitoxin.—B. Welchii Antitoxin.—Anti-Gas Gangrene Serum.—An anaerobic antitoxin (New and Nonofficial Remedies, 1928, p. 351) prepared by immunizing horses with gradually increasing doses of the toxin of *B. welchii*. The finished product is tested on pigeons by determining the minimum amount necessary to neutralize the M. L. D. of *B. welchii* toxin, the potency being expressed in units. The product is marketed in 100 c.c. bottles

of unconcentrated serum containing at least one unit per c.c.; in 50 c.c. bottles of unconcentrated serum containing at least two units per c.c.; and in 20 c.c. syringes of concentrated serum containing at least five units per c.c. H. K. Mulford, Co., Philadelphia.

**Tetanus-Perfringens Antitoxin Refined and Concentrated**—P. D. & Co.—An anaerobic antitoxin (New and Nonofficial Remedies, 1928, p. 351) prepared from the toxins of *B. welchii* and *B. tetani* by immunizing horses with repeated, gradually increasing doses of tetanus toxin and perfringens (*B. Welchii*) toxins until samples from treated animals show one unit or more of tetanus antitoxin per c.c. and one unit or more of perfringens antitoxin per c.c. In addition to use in the treatment of gas gangrene, this product is proposed for use as a prophylactic in conditions such as wound or contusions in the abdominal tract and as curative in cases of acute peritonitis and obstruction of the small bowel. It is marketed in packages of one syringe containing 1,500 units of tetanus antitoxin and 10 units of perfringens antitoxin. Parke, Davis & Co., Detroit. (Jour. A. M. A., May 4, 1929, p. 1521.)

**Insulin**—Squibb, 80 units, 10 c.c.—Each c.c. contains insulin—Squibb (New and Nonofficial Remedies, 1929, p. 197) 80 units. E. R. Squibb & Sons, New York.

**Diphtheria Toxoid**—A diphtheria toxoid (New and Nonofficial Remedies, 1929, p. 368) prepared from diphtheria toxin of which the L+ dose is 0.25 c.c. The toxin is treated with formaldehyde according to the specifications of the U. S. Public Health Service until it is detoxified. It is tested for antigenic power by subcutaneous injection into guinea-pigs. Diphtheria toxoid—P. D. & Co. is marketed in packages containing one bulb (0.5 c.c.) of dilute diphtheria toxoid for the reaction test and two bulbs (0.5 and 1.0 c.c. respectively) of diphtheria toxoid; also marketed in hospital packages. Parke, Davis & Co., Detroit.

**Petrolagar (with Milk of Magnesia)**—Liquid petrolatum (New and Nonofficial Remedies, 1929, p. 228) 65 c.c.; magnesia magma, 8 c.c.; emulsified with agar in a menstrum containing sugar, flavoring, sodium benzoate 0.1 Gm., and water to make 100 c.c. Petrolagar Laboratories, Inc., Chicago. (Jour. A. M. A., June 1, 1929, p. 1837.)

**Bismarsen**.—Sulpharsphenamine Bismuth. — Bismuth Arspenamine Sulphonate.—The sodium salt of a bismuth derivative of arspenamine methylene sulphonic acid with inorganic salts. It contains approximately 13 per cent of arsenic and 24 per cent of bismuth. Bismarsen is used in the treatment of syphilis. The drug is reported to be somewhat slower in its action than intramuscularly administered sulpharsphenamine or intravenously administered neoarsphenamine, but much more rapid than bismuth. More or less severe pains at the site of injection have been reported. Bismarsen is administered intramuscularly. Abbott Laboratories, North Chicago, Ill. (Jour. A. M. A., June 8, 1929, p. 1928.)

**Digifoline—Ciba**.—A digitalis preparation containing the active glucosides of digitalis, free from extractive matter. It is standardized to have the strength of digitalis leaves as standardized by the frog method of Focke. The actions and uses of Digifoline-Ciba are the same as that of digitalis. It may be administered orally, rectally, or by subcutaneous, intramuscular or intravenous injection. Digifoline—Ciba is marketed in the form of Ampules Digifoline—Ciba, Solution Digifoline—Ciba, Liquid and Tablets Digifoline—Ciba. Ciba Company, Inc., New York.

**Concentrated Pollen Extracts**—Swan-Myers.—In addition to the products listed in New and Nonofficial Remedies, 1929, p. 26, the following product has been accepted: Canada Blue Grass Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis.

**Sulpharsphenamine**—Searle, 0.1 Gm. Ampules.—Each ampule contains sulpharsphenamine—Searle (THE JOURNAL, April 20, 1929, p. 1349) 0.1 Gm. G. D. Searle & Co., Chicago.

**Sulpharsphenamine**—Searle, 0.2 Gm. Ampules.—Each ampule contains sulpharsphenamine—Searle (THE JOURNAL, April 20, 1929, p. 1349) 0.2 Gm. G. D. Searle & Co., Chicago.

**Sulpharsphenamine**—Searle, 0.3 Gm. Ampules.—Each ampule contains sulpharsphenamine—Searle (THE JOURNAL, April 20, 1929, p. 1349) 0.3 Gm. G. D. Searle & Co., Chicago (Jour. A. M. A., June 15, 1929, p. 2021.)

**Ampules Luminal-Sodium (Powder)** 2 grains.—Each ampule contains 2 grains of luminal-sodium (New and Nonofficial Remedies, 1929, p. 81.) (Jour. A. M. A., June 22, 1929, p. 2101.)

#### PROPAGANDA FOR REFORM

**Phenobarbital**.—Phenobarbital is the name given by the Revision Committee of the U. S. Pharmacopeia for the product introduced as luminal. Jobbers supply luminal on orders for phenobarbital—U. S. P. In the past, this has been the only thing which they could do, as the Winthrop Chemical Co., Inc., proprietors of luminal, own the patent for this substance. The patent expires, however, May 7, 1929, and several manufacturers are already preparing to put nonproprietary brands of phenobarbital—U. S. P. on the market after that date—which, of course, will be sold under the official name. (Jour. A. M. A., April 13, 1929, p. 1295.)

**Colloidal Mercury Sulphide-Hille**.—The Council on Pharmacy and Chemistry reports that the Hille Laboratories, Inc., Chicago, requested recognition of Colloidal Mercury Sulphide-Hille as a colloid prepared by the "condensation method", the stabilizing medium being a hydrolyzed protein "free from the properties responsible for the production of anaphylaxis in rabbits." As evidence for the value of the product the firm submitted the manuscript of a paper by G. E. Wakerlin and C. Eiseman which has been published, the manuscript of an unpublished paper by Wakerlin; and clinical data by R. H. Paterson. The unpublished paper by Wakerlin gives the results of preliminary animal experimentation which do not permit definite conclusions. The clinical trials of Paterson should be given little weight and cannot be taken to exclude risks from intravenous injection. The unpublished paper by Wakerlin (which is to be published in the *Archives of Dermatology and Syphilology* and was considered by the Council at the request of its editor) is thus far the chief available evidence in favor of Colloidal Mercury Sulphide-Hille and it seems to show that the product is now ready for clinical trial. The Council postponed consideration of the acceptance of the product to await the results of clinical trials. (Jour. A. M. A., April 20, 1929, p. 1349.)

**Tryparsamide in Neurosyphilis**.—Tryparsamide is indicated in certain types of neurosyphilis and has been used in systemic syphilis by some; but its efficacy there is probably much less than that of the arsphenamines. Tryparsamide has a toxic effect on the optic nerve and therefore should not be used in cases in which primary optic atrophy or neuroretinitis is recognized, either on ophthalmoscopic examination or suggested by the complaint of diminu-



tion of vision. During the course of treatment in an individual who has no pathologic changes in the optic disks, a careful ophthalmoscopic examination should be done before each injection in order to find the earliest possible neuritic damage. There are a variety of methods of treatment applicable to both systemic syphilis and neurosyphilis far superior to trypanamide for the ordinary case and much less dangerous. (Jour. A. M. A., April 20, 1929, p. 1373.)

**The Injection Treatment of Hemorrhoids.**—The injection treatment of hemorrhoids was so viciously exploited by quacks that it was frowned on by most physicians. At present the method is used frequently by reputable proctologists. The English school has practiced the injection treatment with a 20 per cent solution of phenol in glycerin. J. Boas, in Germany, has reported 200 cases in which injections with alcohol were made. A solution of quinine hydrochloride and ethylurethane has its ardent advocates. The use of a dextrose solution, injected after a preliminary intradermal procaine hydrochloride injection, is the most painless and probably the safest procedure. In certain cases the injection treatment is inapplicable. (Jour. A. M. A., April 20, 1929, p. 1373.)

**Prophylaxis and Treatment of Pertussis.**—The use of convalescent serum in the prophylaxis and treatment of whooping cough has been disappointing. Vaccine therapy has been extensively employed. The opinions regarding the effectiveness of the vaccines are greatly at variance. The Council on Pharmacy and Chemistry has not admitted any "mixed" whooping cough vaccine to New and Non-official Remedies. In regard to simple pertussis bacillus vaccine it states that the evidence for its value either for prevention or for treatment is questionable. Drug therapy has fallen into discredit in the treatment of whooping cough. The use of X-rays, ultraviolet rays and other light treatment has been tried without convincing results. When the weather permits, the best results are obtained by fresh air treatment. (Jour. A. M. A., April 20, 1929, p. 1374.)

**Annual Meeting of the Council on Pharmacy and Chemistry.**—Among the subjects of special interest to the medical profession which were considered at the annual meeting of the Council on Pharmacy and Chemistry, held April 5th and 6th were: The Board of Trustees having requested that a special committee of the Council be appointed to pass on food products offered for advertising in the publications of the Association, the Council considered plans and methods of procedure for the work of such a committee. The Council discussed the rationality of a preparation combining type I and type II pneumococci in a serum for treatment of pneumonia and decided to publish a report on the present status of the serum treatment of pneumonia. The Council considered certain allegations that inferior and unfit ergot is being imported and used for the preparation of the pharmacopeial fluid extract and decided that, in consideration of the lack of evidence for this assertion and the assurances of the government that no inferior ergot had been imported since September 1, 1927, no report was required at this time. The Council asked its referee for scarlet fever immunization products to investigate the present status of such preparations accepted for New and Nonofficial Remedies and to report on the desirability of retaining or rejecting them. The Council discussed the status of streptococcus preparations for the treatment of rheumatic fever made in accordance with the method of Dr. J. C. Small previously found unacceptable for New and Nonofficial Remedies, and concluded that, while the products are suitable for

controlled investigation, propaganda which invites their use in general is not justified at this time. The Council decided on the publication of a report on the dangers of serum therapy, particularly of protein sensitization. The Council discussed the wisdom of permitting under certain restrictions the advertising to the laity of preparations of liquid petrolatum, of agar products and of similar preparations which act because of their bulb but postponed action on this question. The Council decided to appoint a committee to report on the desirability and feasibility of the Council's undertaking the work of passing on natural mineral waters. (Jour. A. M. A., April 27, 1929, p. 1430.)

## Book Announcements

**The Treatment of Fractures.** By LORENZ BOHLER, M. D., Chief Surgeon and Director of the Vienna Accident Hospital. Authorized English Translation by M. E. STEINBERG, M. S., M. D., formerly Senior Officer on the Surgical Service of the U. S. Public Health Service Hospital, Vienna. Wilhelm Maudrich. 1929. Octavo of 185 pages, with 234 illustrations. Cloth. Price, \$5.00.

**An Introduction to the Study of Physic.** (Now for the first time published). By WILLIAM HEBERDEN. 1710-1801. A Prefatory Essay by LEROY CRUMMER, with a reprint of Heberden's, Some Account of a Disorder of the Breast. Paul B. Hoeber, Inc., New York. MCMXXIX. Octavo of 159 pages. Portrait in Photogravure. Six illustrations. Cloth. Price, \$2.00 net.

**Transactions of the College of Physicians of Philadelphia.** Edited by WALTER G. ELMER, M. D., Third Series. Volume the Fiftieth. Philadelphia. Printer for the College. 1928. Octavo of 409 pages, with illustrations. Cloth.

**The History of Nursing.** By JAMES J. WALSH, M. D. Ph. D., Medical Director, Fordham University School of Sociology. New York. P. J. Kenedy & Sons, Publishers. Octavo of 293 pages. Cloth. Price \$2.00. Postpaid \$2.15.

**The Challenge of Chronic Diseases.** By ERNST P. BOAS, M. D., Attending Physician, Montefiore Hospital for Chronic Diseases, and NICHOLAS MICHELSON, M. D., Adjunct Physician, Montefiore Hospital for Chronic Diseases. New York. The Macmillan Company. 1929. Octavo of 197 pages. Price, \$2.50.

**Forty-Fourth Annual Report of the Bureau of American Ethnology.** To the Secretary of the Smithsonian Institution. 1926-1927. United States Government Printing Office. Washington. 1928. Quarto of 553 pages. Illustrated. Cloth.

**Observations on the Thunder Dance of the Bear Gens of the Fox Indians.** By TRUMAN MICHELSON. Smithsonian Institution. Bureau of American Ethnology. Bulletin 89. United States Government Printing Office. Washington. 1929. Octavo of 73 pages. Cloth.

**Shabik'Eshchee Village. A Late Basket Maker in the Chaco Canyon New Mexico.** By FRANK H. H. ROBERTS, JR. Smithsonian Institution. Bureau of American Ethnology. Bulletin 92. United States Government Printing Office. Washington. 1929. Octavo of 164 pages. Cloth.

# Virginia Medical Monthly

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Richmond, Va.

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Richmond, Va. University, Va.

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Business Manager and Secretary-Treasurer.

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No. 5

## Editorial

### Rheumatic Fever.

The term "rheumatism" must ever "intrigue" medical thought. The term is inaccurate, un-descriptive, and, but for its time-attached relationship to all sorts of painful combinations in the articular and muscular systems of the body, has little meaning. Of course, it is an old medical term that when spoken gives layman and physician, alike, a certain general idea of what is meant. So it comes about quite naturally that the medical man, as well as the layman, continues to use the term to cover a wide range of maladies affecting the function of the joints and muscular mechanism of the body. But more serious becomes the continued use of this term in medical writing because the origin or etiologic factors and the complicating and associated pathology vary greatly. The varied forms of arthritis, both in the acute and chronic stages, make for confusion and misunderstanding. Acute rheumatism, subacute rheumatism, and chronic rheumatism, as terms, carry the effect of mis-labeling and misbranding. Rheumatic arthritis and rheumatic endocarditis, gonorrheal rheumatism, rheumatic fever, each conveys only a slant of meaning giving an indication of the play of symptoms and of the possible etiologic side and the place of the exhibition of the malady.

Besides, subacute rheumatism foregathers under its definition an assortment of mild, recurrent, more protracted forms of disturbance of the joints or muscles that, probably, depend upon more prolonged or attenuated etiologic factors, while chronic rheumatism covers a multitude of decrepitudes of articular ma-

chinery and muscular structures of the body. Because of the foregoing reasons, of old-time association, scientific men continue to write of "rheumatism." However, as it is a term of such importance in the category of human disease, rheumatism engages, naturally, the attention of the medical mind; particularly, when there is presented new work upon many unsolved problems connected with the term.

Homer F. Swift,\* of the Hospital of the Rockefeller Institute for Medical Research, read a valuable paper on rheumatic fever before the Institute of Medicine, Chicago, in March last. It is worth careful persual by practitioners because there is clearly presented accepted and new phases of this malady. At the outset, this writer calls attention to the importance of remembering that the term, rheumatic fever, must be used as describing a malady which may not always show arthritis or joint involvement. Polyarthritic involvement is usual, but not infrequently rheumatic fever may show itself in a rheumatic endocarditis without arthritic signs. Arthritis and fever, jointly occurring in most cases, however, make for the term rheumatic fever, while the visceral complications may occur without involving the joints. In cases of acute endocarditis, of chorea, of nephritis, of bronchopneumonia, of pleurisy, of nodosities presenting without arthritic signs, may be found instances of the occurrence of "rheumatic fever" without necessarily, displaying arthritic disabilities.

Let us follow Swift as the histologic characteristics of the disease are pointed out. It seems now possible "from the assembled observations of clinicians and pathologists to reconstruct a fairly complete histologic picture of the disease." To such an observation the busy clinician may wisely give due and mature thought. Of course, the picture is not uniform because different cases show variations histologically as they do clinically. The tissue implicated, the duration of the disease, the host's "reactivity," the dose and concentration of the etiologic agent in one area, and the variations in the virulence of the parasite, according to Swift, make variations. The reaction of rheumatic fever makes for a focal destruction of tissue. The processes of destruction in

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foci may be so minute that special staining is necessary in order to bring them out or they may be so gross that a low power lens will show them up in some subcutaneous nodule the necrotic collagen fibres. In an Aschoff body one sees amorphous granular material; in synovial membrane, one may note small areas of necrosis; observers have noted on peri-articular tissue of joints, on heart valves, and in arterial walls the same destructive change. Besides tissue destruction, Swift calls attention to an exudation of fluid and cells. Synovial sacs are distended with a fluid of heavy fibrin content and loaded with polymorphonuclear neutrophils. Early subcutaneous nodules exhibit edema, deposition of fibrin and fairly numerous wander-cells. These changes are found in auricular endocardium, on the valves, and in the aorta.

In the more advanced stage, in many instances, there is a marked increase in the fixed cells and they form the characteristic components of the Aschoff body and the subcutaneous nodule.

It now appears that the arrangement of the cells in the Aschoff bodies, in the form of a rosette, results from the accumulation of these cells about minute areas of necrosis, that different arrangements are found in the trabeculae of the lung, in the pericardium and pleura because of different histologic make-ups. Swift emphasizes the importance of the blood vessel lesions in rheumatic fever. Following the lead of Klotz, rheumatic fever may be thought of as much as a disease of the blood vessels as it is of the joints. Thrombi in the branches of coronary arteries, and vascular lesions in many parts of the body have been observed; the endothelium of vessels swell and later become separated from the wall of the vessel. Beyond the blood vessels, exudative and proliferative pathology is found.

#### RHEUMATIC VALVULITIS

Swift makes quite clear that an understanding of that extremely important morbid phenomenon, rheumatic valvulitis, is more easily gotten when considered as this sort of a process. Exudative and proliferative tissue reaction of unusual degree is observed. The constant motion of the valve, the stress and strain in the beating heart, appear to be determining factors in the localization of the rheumatic tissue reaction of the valves. But a broader conception of the morbidity of this

"rheumatic" affection of the heart is to comprehend the fact of widespread involvement of the vascular system of the heart. This specialized vascular system is subject to the same vascular changes of blood vessels elsewhere as noted in vessel changes. Swift calls attention to three possible sites for initiation of valves, namely: (1) the covering endocardium; (2) the blood vessels in the valves; (3) the foci in the valve rings.

It is extremely important to note from Swift's article that there is a departure from the former conception of the origin of valvulitis. While it was formerly held that the infection extended from the surface of the valve, now it is believed that primary infection often begins in the substance of the valve; while it occurs often here, it occurs also upon the surface. Swift brings clearly to the reader that rheumatic endocarditis is a diffuse valvulitis with edema and infiltration of the cusps.

#### ETIOLOGY

Comment upon this interesting subject by Swift must be attended with thoughtful consideration.

Gonorrheal rheumatism produces a polyarthritis like that of rheumatic fever. Serious polyarthritis may be induced by dysentery bacilli, bacillus melitensis, tubercle bacilli, spirochaeta pallida, but eventually other symptoms appear that mark these as different from rheumatic polyarthritis. No filtrable virus, says Swift, has been shown, so far as he knows, to produce either acute or chronic lesions comparable to those of rheumatic fever.

All workers in this field have turned to streptococci as an etiologic explanation. Swift considers the question carefully and presents supporting evidence to show the uncertainty of accepting streptococci as a specific causative factor, but the relation of these organisms to the allergic phenomena in the body offers suggestive probabilities in the problem of discovering specific etiologic agents of rheumatic fever. Readers may well take time to review Swift's paper on this subject and read thoughtfully his careful presentation of this phase of the cause of rheumatic fever.

#### State Medical Society.

The coming meeting of the State Medical Society at Charlottesville will be awaited with interest by the members of the Society. Besides the usual interesting features of the State

Medical meeting, the dedication ceremonies of the elaborate and splendid new building for medical teaching at the University of Virginia promises to give a peculiar attraction which will engage the keen and sympathetic attention of members of the Society. While the meeting is to be one mainly for the presentation of papers and addresses upon medical topics, the inspection of and visitation to the modern buildings by the members of the Society offer opportunity to observe the elaborate and perfected housing of the University of Virginia for the teaching of medicine. Every Virginian takes a peculiar pride in the welfare and work of the State University. Everyone must feel a sort of pride in its great progress and usefulness. But to the medical men of Virginia, the work of its great university in the field of medicine, a peculiarly deep interest always attaches. Medical men, probably as in no other one of the learned professions, hark back ever, in the days of teaching life, to institutions. Medical practitioners feel a close and intimate attachment to the work of the medical schools. Practitioners are ever looking to the medical schools of the country for new and advanced thought in medical research; practitioners visit clinics conducted by teachers of medical schools in order that experience and practice may be improved. So there is a close and inherent attachment between the active practitioners of medicine and the modern, well equipped and proficient medical school.

Virginia doctors will foregather at the University of Virginia this fall in order that they may show their interest in the splendid new buildings that are to be then dedicated and opened for medical teaching, as well as to gather, from contact and touch with the members of the faculty and distinguished visitors, inspiration for better work back home. Our members are urged now to lay their plans to go to Charlottesville for the coming meeting of the Medical Society of Virginia.

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## News Notes

### Our Charlottesville Meeting.

It won't be long now! The time is getting short for doctores to make their plans to attend the meeting of the State Society to be held in Charlottesville, October 22nd, 23rd, and 24th. Don't forget to make your hotel

reservations soon. The lists of hotels and their rates are given in the June issue of the MONTHLY. The new medical building of the University is to be dedicated on the first day of the meeting, and a large attendance is expected. The building is considered almost an architectural masterpiece and cost more than \$1,400,000.00.

Dr. L. T. Royster, is General Chairman of the Albemarle County Medical Society Committee, and Dr. W. H. Goodwin, of the University Medical School Committee. Mrs. H. B. Mulholland is Chairman of the Committee for the entertainment of the ladies.

Cards to secure titles for papers will be mailed out this month, and we hope for prompt responses to them.

### The American Medical Association.

Held its eightieth annual session in Portland, Ore., last month, under the presidency of Dr. Wm. S. Thayer, of Baltimore. There was a registered attendance of over three thousand from all parts of the United States. Drs. Southgate Leigh, Norfolk, J. W. Preston, Roanoke, and Fred M. Hodges, Richmond, were Virginia's delegates in the business sessions. In addition to these, other Virginians noted at the meeting were: Drs. J. Shelton Horsley, A. L. Gray, Warren T. Vaughan, and J. B. Stone, all of Richmond.

Detroit was selected as the next place of meeting. Dr. M. L. Harris, Chicago, succeeded to the presidency, and Dr. William Gerry Morgan, of Washington, D. C., a member of the Medical Society of Virginia and well known to many of our members, was made president-elect. Other officers elected are: Vice-president, Dr. Ernest A. Sommer, Portland, Ore.; secretary, Dr. Olin West, Chicago; treasurer, Dr. Austin A. Hayden, Chicago; speaker of the House of Delegates, Dr. Fred C. Warnshuis, Grand Rapids, Mich.

### Dr. Fred M. Hodges,

Richmond, Va., was elected chairman of the X-ray Section of the American Medical Association, at its recent meeting in Portland, Ore. Dr. Hodges also acted as alternate for one of our delegates in the business sessions of the A. M. A.

### The American College of Radiology

Held its annual meeting in Portland, Ore., at the time of the meeting of the American Medical Association, under the presidency of Dr. Alfred L. Gray, of Richmond, Va. This



society has a membership limited to about one hundred. Dr. Fred M. Hodges, Richmond, Va., was among those admitted to membership this year. Other Virginia members are Drs. A. L. Gray and Daniel D. Talley, both of Richmond. Dr. James T. Case, formerly of Battle Creek, Mich., now of Chicago, succeeded to the presidency. Dr. Rollin H. Stevens, Detroit, Mich., was made president-elect, and the following officers were re-elected: Executive secretary, Dr. Albert T. Soiland, Los Angeles (who has held this position since organization of the College); treasurer, Dr. Benj. H. Orndoff, Chicago; historian, Dr. I. S. Trostler, Chicago.

The next meeting will be held in Detroit, during the time of the 1930 meeting of the American Medical Association.

### Some Vacationists.

Dr. J. L. Hamner, Mannboro, Va., recently returned home after a visit to West Virginia.

Dr. and Mrs. Dean Cole and children, of Richmond, have been visiting Dr. Cole's mother at her home near Chilhowie, Va.

Dr. Clarence H. Saunders is home again after a vacation spent fishing with a party of friends at Lake Cahore, Va.

Dr. and Mrs. E. T. Gatewood, Richmond, recently spent a vacation at Atlantic City, N. J.

Dr. John W. Scott returned to his home in Gordonsville, Va., early in July, after a visit to his son in Waynesboro, Va.

Dr. J. A. White, Richmond, and granddaughters, recently took a motor trip to Gettysburg, Pa., and other points of interest. The first of this month he left for his annual vacation at White Sulphur Springs, W. Va.

Dr. and Mrs. C. V. Montgomery have returned to their home in South Hill, Va., after a visit to Virginia Beach.

Dr. Charles H. Peterson, University, Va., spent two weeks in July visiting at Monterey, Va.

Dr. and Mrs. J. T. R. Sweeney and daughters, Richmond, have been spending sometime at their cottage at Buckroe Beach, Va.

Dr. and Mrs. C. C. Tucker have returned to their home at Blackstone, Va., after a stay of several weeks in New York City.

Dr. and Mrs. H. U. Stephenson, of Richmond, have been enjoying a vacation at Virginia Beach.

Dr. S. W. Maphis, Warrenton, Va., spent several days last month in Washington, D. C.,

to be with his son, Dr. Edward C. Maphis, who was operated on in a local hospital.

Dr. S. A. Riddick, of Norfolk, Va., recently visited friends in Smithfield, Va.

Dr. and Mrs. A. C. Monroe are home again in Richmond, after a short stay at Natural Bridge and Mountain Lake, Va.

Dr. and Mrs. R. H. Manson and family, of McKenney, Va., left the latter part of July for a motor trip through the Shenandoah Valley.

Dr. and Mrs. H. Stuart MacLean, Richmond, are spending sometime at their cottage at Thousand Island Park on the St. Lawrence River.

Dr. Meade S. Brent, Petersburg, Va., visited relatives at Heathsville, Va., in July.

Dr. and Mrs. Frank V. Fowlkes and sons, of Richmond, have been enjoying a vacation in Canada and other points of interest in the north.

Dr. Thos. S. Richardson, Waynesboro, Va., has been spending several weeks at Hot Springs, Va.

Dr. and Mrs. Clifton M. Miller and daughters, Richmond, left early this month for a visit in Asheville, N. C.

Dr. and Mrs. N. Thos. Ennett will return to their home in Richmond, Va., about the first of September after a visit to Scotland, England, Belgium, Germany, France, Switzerland and Italy. While abroad, Dr. Ennett has been attending a number of school Clinics held by foreign physicians.

Dr. Reid White, Lexington, Va., has been on a visit to Cape May, N. J., while Mrs. White stopped off in Washington, D. C.

Dr. and Mrs. Gerald A. Ezekiel, Richmond, visited friends in the mountains of Pennsylvania, after Dr. Ezekiel completed his service in the Medical Camp at Carlisle, that State.

Dr. J. A. Noblin and family of Radford, Va., spent their vacation with relatives in Scott County, Va.

Dr. and Mrs. John L. Thornton and son, of Warrenton, Va., have been visiting at Orkney Springs, Va.

Dr. A. M. Sneed, Toano, and Dr. J. M. Henderson, Williamsburg, were among those in attendance at the Orange Horse Show, where Dr. Sneed's colt, "Sailor Boy," won second place in his class.

Dr. and Mrs. James H. Smith and daugh-

ters, Richmond, are home again after a vacation spent near Berryville, Va.

Dr. W. W. Wilkinson and family, of La Crosse, Va., motored to Asheville, N. C., where they spent their vacation.

Dr. Mortimer H. Williams, Roanoke, recently spent sometime with his family at their summer home near Irvington, Va. Drs. H. H. Wescott, A. L. Jones, and W. L. Powell, all of Roanoke, were his guests for several days.

Dr. and Mrs. Fletcher Woodward, Charlottesville, were recent visitors at Saluda, Va.

Dr. and Mrs. J. R. Bagby, Newport News, have been visiting at "Buena Vista" farm, just outside of Pulaski, Va.

#### **Plans for a Texas Children's Hospital.**

A children's hospital to be located in Dallas is now being planned by a group of Texas citizens. The plans call for a building with 100 beds. A drive for funds to defray the cost of construction and equipment—\$550,000—has been inaugurated. The sponsors plan to raise also an endowment of \$1,000,000 to cover the maintenance of fifty free beds, and it is hoped that eventually the hospital will be placed on an entirely free basis.

#### **Dr. W. E. Chapin,**

Of the Children's Memorial Clinic, Richmond, Va., has just left for Detroit where he will spend several weeks making observations at the Detroit Municipal Tuberculosis Sanatorium for Children.

#### **Medico-Legal Journal Changes Hands.**

*The Medico-Legal Journal*, published for many years in New York, recently began its forty-sixth year under the ownership, editorship and management of Dr. William J. Hickson, Director of the Psychopathic Laboratory of the Municipal Court of Chicago. The former editor, Dr. Alfred W. Herzog, will continue as editor emeritus and will contribute to its pages from time to time. He will also act as its New York representative. The journal will attempt to cover "all questions of law involving medicine—the latter taken in its broadest sense—the social diseases—and all phases of medicine involving law." The new address of this journal is 1909 North Ogden Avenue, Chicago, Ill.

#### **Dr. Frank F. Thweatt, Jr.,**

Of the class of '28, University of Virginia, Department of Medicine, was transferred July the 1st, from the U. S. Marine Hospital at Stapleton, N. Y., to the U. S. Ma-

rine Hospital, Ellis Island, N. Y., following his admission to the Regular Corps of the U. S. Public Health Service.

#### **Dr. L. E. Walton,**

Recently of Pullman, W. Va., has located at New Market, Va., for the practice of his profession.

#### **Petersburg Unit of Gorgas Health Corps.**

The following doctors are members of the local unit of the Gorgas Health Corps, recently organized in Petersburg, Va.: Drs. J. Bolling Jones, Robt. A. Martin, J. M. Harwood, Wm. A. Reese, Wright Clarkson, and Mason Romaine.

#### **Civil Service Examinations.**

The following open competitive examinations are announced, applications for which must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than December 30, 1928:

Associate medical officer and assistant medical office;

Occupational therapy aide (arts and crafts);

Physician and associate physician;

Chief nurse and head nurse (Indian service); and graduate nurse, graduate nurse visiting duty, and graduate nurse junior grade (various services).

Physicians are urged to be careful when executing medical certificates on Civil Service applications. Discrepancies between medical examinations executed by private practitioners and those later made by Government medical officers often present a problem to the Government and cause disappointment to the applicant when the private practitioner making a physical examination of the applicant has been too liberal in his attitude toward physical disqualifications.

#### **American Ophthalmological Society.**

At the annual meeting of this Society held at Hot Springs, Va., in June, Dr. William C. Posey, of Radnor, Pa., was made president; Dr. Arnold Knapp, New York, president-elect, and Dr. Emory Hill, Richmond, Va., was re-elected secretary.

#### **Associated with Dr. Wheeldon.**

Dr. J. R. Grinels, of the class of '26, Medical College of Virginia, on July the 15th became associated with Dr. Thomas Wheeldon, Richmond, as assistant in orthopedic surgery. Their offices are at 318 West Franklin Street, this city. Dr. Grinels has spent two years of



the time since his graduation at Memorial Hospital, Richmond.

#### **Married.**

Dr. John Powell Williams and Mrs. Virginia Marshall Gregory, both of Richmond, Va., July 15th.

Dr. Joseph J. Anderson and Miss Laura Temple Drudge, both of Richmond, Va., July 6th.

Dr. Lacey S. Wornal, of the class of '28, Medical College of Virginia, and for the past year an intern at Memorial Hospital, Richmond, and Miss Corrine Amanda Snow, of Richmond, June 26th. They will make their home in West Virginia.

#### **Dr. D. S. Divers,**

Pulaski, Va., has been elected vice-president of the Pulaski Country Club.

#### **Dr. Paul H. Ringer,**

Asheville, N. C., has been elected president of the North Carolina State Board of Medical Examiners.

#### **Dr. D. Lane Elder,**

Hopewell, Va., has been appointed as surgeon for the Seaboard Air Line Railway, for Hopewell and vicinity.

#### **Dr. Joseph F. Geisinger,**

Richmond, Va., is out again after undergoing an operation for appendicitis, early in July.

#### **Dr. Robert C. Bryan,**

Richmond, Va., announces that, since disposing of his share of Grace Hospital, this city, he has become a member of the staff of the Stuart Circle Hospital Corporation. He also has offices in the Prestwoud Apartments (Pine Street Entrance.)

Dr. R. L. Creekmur is still associated with Dr. Bryan.

#### **Officers in Chamber of Commerce.**

At a recent meeting of the Madison County Chamber of Commerce, at the courthouse in Madison, Va., Dr. J. N. Clore, of that place was elected president; and Dr. C. F. Ross and Dr. W. L. Early, Wolfstown, vice-presidents.

#### **Diphtheria is Preventable.**

Children need not be infected with or die of diphtheria if parents can be made to realize the value of immunization, says the Metropolitan Life Insurance Co. of New York. Not one of the 178 children insured with the company who were reported by physicians to have died of the disease during the early part of 1929 had been immunized against the disease

by injections of toxin-antitoxin according to the medically accepted procedure. In the great majority of these fatal cases the doctor was not called until the fourth day or later, so that the antitoxin treatment used when the disease has developed was not given soon enough to save the child.

#### **Surgeon General Hugh S. Cumming,**

Of the U. S. Public Health Service, was recently elected to honorary membership in the Delta Omega public health fraternity.

#### **Dr. O. Noel Morison,**

Of the class of '28, University of Virginia, Department of Medicine, was in June appointed Assistant Physician at the Binghamton, N. Y., State Hospital.

#### **Dr. Charles S. Lawrence,**

Winston-Salem, N. C., has been elected president of the Eighth District Medical Society of that State.

#### **American Pediatric Society,**

At the recent meeting of this Society, Dr. Joseph Brennemann, of Chicago, was made president and Dr. Howard Childs Carpenter, of Philadelphia, was re-elected secretary. Montreal, Canada, was selected as the next place of meeting.

#### **Dr. Archer A. Wilson,**

For the past several years of Switchback, W. Va., has just come to Richmond, to become resident in neuro-surgery of the Memorial and Allied Hospitals. He was graduated from the Medical College of Virginia in 1923 and served an internship at Sheltering Arms Hospital, this city, before locating for practice.

#### **Infantile Paralysis.**

While a number of cases of infantile paralysis have been reported in Roanoke City and County, this Summer, the State Board of Health states that there has not been a large enough number to justify alarm. Up to July 28th, thirty-three cases had been reported, at which time there seemed to be a cessation in the incidence of the disease.

It is urgently requested that all suspicious cases be reported promptly to the State Board of Health as the State authorities will be glad to cooperate in every way possible.

#### **Dr. E. L. Caudill,**

Elizabethton, Tenn., recently of Giles County, Virginia, has been appointed one of the physicians for the American Bemberg and American Glanzstoff Corporation plants, at that place.

**Dr. N. D. Morton,**

Richmond, Va., is reported as much improved after an illness which confined him to bed for several weeks.

**Virginia Society of Oto-Laryngology and Ophthalmology.**

At the recent meeting of this Society in Staunton, Dr. F. M. Hanger, of that city presiding, the VIRGINIA MEDICAL MONTHLY was adopted as its official organ. It was decided to hold the next meeting in Roanoke in the Spring of 1930 and the following officers were elected: President, Dr. H. B. Stone, Roanoke; vice-president, Dr. Frank Smart, Norfolk; secretary-treasurer, Dr. Fletcher D. Woodward (re-elected), University. The executive committee is composed of Drs. Clifton M. Miller, Richmond; C. S. Dodd, Petersburg; and Frank M. Hanger, Staunton.

**Award of Leslie Dana Medal.**

In recognition of "the most outstanding achievement in the prevention of blindness and the conservation of vision," Dr. Ernest Fuchs, of Vienna, Austria, will be awarded the Leslie Dana Gold Medal for 1929, it is announced by Lewis H. Carris, managing director of the National Society for the Prevention of Blindness. The presentation will be made at the International Ophthalmological Congress in Amsterdam, Holland, September 10th. In selecting Dr. Fuchs, there was a departure for the first time from the usual custom of considering only Americans for this honor.

**Campaign Against Tuberculosis in Mexico.**

Forty tuberculosis dispensaries to be opened in various parts of Mexico are being planned by the Federal Government of that country. The physicians and their assistants on the dispensary staffs will be required to take a special three-months' course in the diagnosis and treatment of the disease. The organization of a National Tuberculosis Association is also proposed for the future by the Mexican Department of Public Health.

**The American Psychiatric Association,**

At its annual meeting held in Atlanta, Ga., selected Washington, D. C., as its place of meeting next year and fixed the dates as May 5-10. Dr. Earl D. Bond, Philadelphia, was elected president, and Dr. Clarence O. Cheney, Poughkeepsie, N. Y., secretary.

**Dr. Joseph T. McCastor,**

Who has been practicing for the past year in Thomas, W. Va., will leave shortly for New

York to do post-graduate work. Mrs. McCastor will accompany him. They have recently been visiting Dr. and Mrs. Ramon D. Garcin, in Richmond. Dr. McCastor graduated from the Medical College of Virginia in 1927.

**The Medical Center in Richmond.**

Announcement has been made of plans for the development of the medical center in Richmond at the Medical College of Virginia by Dr. W. T. Sanger, president of the institution. The work will likely cover a number of years.

The first unit of the new center, a building for the college school of nursing costing approximately \$300,000 for construction, equipment, and site, has been completed. The other units will go up as fast as funds, which are being sought in different directions, are available. Most of the ground to be used has already been acquired.

The buildings projected are:

1. A library to be constructed in association with the library of the Richmond Academy of Medicine, cost approximately \$125,000.

2. A teaching unit to house the outpatient department and laboratories for the teaching of chemistry, bacteriology, and pathology, cost approximately \$750,000.

3. A nurses' dormitory for the St. Philip Hospital school of nursing, an institution maintained by the college for negro girls, cost approximately \$150,000.

4. A building for clinical dentistry, cost approximately \$400,000.

5. A general hospital for white patients to be built in association with the outpatient department and teaching laboratories, cost \$1,000,000 or more.

6. A gymnasium, auditorium, and recreational center, cost undetermined.

When this plan is carried through then it is hoped to provide dormitories for students in the schools of medicine, dentistry, and pharmacy.

**\$2,000,000 for the New Haven Hospital.**

A gift of \$2,000,000 from the General Education Board for a medical and pediatric laboratory and a dispensary for the New Haven Hospital has been announced by the President of Yale University. The hospital is affiliated with the Yale University School of Medicine.

**Annual Report of the Gill Memorial Eye, Ear and Throat Hospital,**

Roanoke, Va., for the year ending June 30,



1929, has just come to our hands. This shows an increase in volume of work in every department over the previous year. Improvements under contemplation by the hospital are an additional story and roof garden to the present structure. This new unit will also include an amphitheater so that at least fifty men may be accommodated at their annual post-graduate courses. It is stated that these courses are not intended to attempt to prepare men for the practice of the specialties, but to give those already prepared and who are in practice a new viewpoint and a new impetus for further study and investigation. The subjects at these courses are presented by men of national reputation.

#### **Dr. E. Newton Pleasants,**

For the past year Associate Surgeon at the Memorial Hospital, Princeton, W. Va., has recently removed to his home in Richmond, Va., where he is associated with Dr. Alexander G. Brown, Jr., in the practice of internal medicine. Dr. Pleasants will be remembered as having served a one-year internship at Stuart Circle Hospital in Richmond previous to his service in West Virginia. He is a graduate of the Medical College of Virginia, class of 1927. Dr. and Mrs. Pleasants will make their home on Fauquier Avenue, North Ginter Park.

#### **Dr. E. J. Nixon,**

Petersburg, Va., has been elected one of the delegates from his local Post of the American Legion, to the State Legion Convention which meets in Petersburg early in September.

#### **Dr. Calkins to Leave Virginia.**

Dr. Leroy A. Calkins, for several years professor of obstetrics and gynecology at the University of Virginia, recently tendered his resignation that he might accept a similar position in the University of Kansas Medical School, Kansas City, Kan., on a half time basis. He will also have an office in Kansas City Mo., for private work.

Dr. F. Bayard Carter, of the Yale School of Medicine, has been elected to succeed Dr. Calkins as the head of the department of obstetrics and gynecology and will have the rank of associate professor. Dr. Carter was graduated in medicine from Johns Hopkins University in 1925.

#### **Changes Among Health Officers.**

Dr. Edwin L. McQuade, recently health officer of Henrico County, Va., has resigned to accept a position as instructor in epidemiology

at Johns Hopkins University, School of Medicine.

Dr. A. L. McLean, who has been in charge of the Southampton County Health Department for several years, will take over the work in Henrico County.

Dr. B. B. Bagby, a native of and formerly engaged in health work in Virginia, has returned to this State after an absence of three years in Athens, Ga., and has become health officer of Southampton County.

Dr. Harry Walker, Courtland, Va., has been appointed health officer of Fairfax County, Va., and entered upon his duties in July. Fairfax County is resuming this special health work after a suspension of it for several years.

#### **Dr. Warren T. Vaughan,**

Richmond, Va., was elected to the board of censors of the American Society of Clinical Pathologists, at its meeting held in Portland, Ore., at time of the meeting of the American Medical Association.

#### **Dr. Ford K. Lucas,**

Of the class of '28, University of Virginia, Department of Medicine, after a year's internship at Roanoke Hospital, Roanoke, Va., has located at Blacksburg, Va.

#### **Dr. Barton B. McCluer,**

For several years located at Speedwell, Va., announces his change of address to Bon Air, Va.

#### **Dr. Charles E. Dyer,**

Formerly of Pulaski, Va., has been appointed Company physician to the Majestic Collieries Company, at Majestic, Ky., and recently entered upon his duties there.

#### **Members of Warrenton Chamber of Commerce.**

Drs. George H. Davis and M. B. Hiden, Warrenton, Va., have been elected as two of the directors of the Warrenton Chamber of Commerce, for the coming year.

#### **Dr. A. R. Lutz,**

Of the class of '27, Medical College of Virginia, after one year's general internship and one year as chief resident in surgery at the Charleston, W. Va., General Hospital, has been made assistant surgeon to the Welch Hospital No. 1, Welch, W. Va., and entered upon his duties there on July the 1st.

#### **Dr. Robley R. Goad,**

Of the class of '25, Medical College of Virginia, for the past year connected with the

Davis Clinic, at Statesville, N. C., is now in Washington, D. C., where he is taking an ear, nose and throat internship at the Episcopal Eye, Ear and Throat Hospital.

**Dr. A. G. Coumbe,**

Formerly of Washington, D. C., and for a number of years a member of the Medical Society of Virginia, resigned from the Veterans' Bureau on May the 15th. After an automobile trip to the Western coast, he expected to make his home in or near Washington.

**Dr. E. G. Gill,**

Roanoke, Va., was elected one of the vice-presidents of the American Laryngological, Rhinological and Otological Society, at its recent meeting in San Francisco, and was also made chairman of the Southern Section of this Association. The next meeting of this section will be held in Roanoke, Va., in January, 1930.

**The Virginia Hospital Association**

Is to meet in Charlottesville, Va., at 10 A. M., October the 22nd, the opening day of the Medical Society of Virginia. Dr. J. M. Shackelford, Martinsville, is president, and Dr. John O. Boyd, Roanoke, secretary-treasurer.

**Dr. Clyde F. Ross,**

Richmond, Va., was appointed grand praetor of the Fifth Province of the Sigma Chi fraternity at the recent grand chapter meeting in Portland, Ore. Dr. Ross became connected with this fraternity when a student at Roanoke College.

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## Obituary Record

**Dr. Edward Lionel Marshall**

Died at his home at Big Island, Va., in June, 1929. He was a native of England and was sixty-eight years old. Dr. Marshall was a graduate of the class of 1891 of the College of Physicians and Surgeons of Baltimore, Md., and had been a member of the Medical Society of Virginia since that year.

At a meeting of the Bedford County Medical Society, shortly after his death, the following resolutions were adopted:

WHEREAS, Our Heavenly Father, in His divine providence has seen fit to take from our midst one of our colleagues, Dr. E. L. Marshall, of Charlemont, Bedford County, Va.;

WHEREAS, He has been a loyal and faithful member of the Bedford County Medical Society for many years, during which time he enjoyed the confidence and esteem of the entire profession;

WHEREAS, His Christian character and beneficent influence endeared him to a large clientele. Therefore, be it

RESOLVED, That we, members of the Bedford County Medical Society, do hereby express our deep sorrow at the loss of such a physician, and so valuable a friend, and wish to express our sincere sympathy to his family and relatives; and that a copy of these resolutions be placed on the minute book of the Bedford County Medical Society, published in the local newspapers, in the *Virginia Medical Monthly*, and be sent to his family.

T. P. WEST, *President*,

R. A. BENNETT, *Secretary*.

**Dr. George W. Dingus,**

Formerly a member of the Medical Society of Virginia, died at Coeburn, Va., May 22, 1929, of cerebral hemorrhage. He was seventy-five years of age.

**Dr. Charles L. Bailey,**

Sandston, Va., died at a Richmond hospital, August 1, 1929, after a brief illness. He was fifty-two years of age. Dr. Bailey was a graduate of the class of '01 of the Medical College of Virginia and a former member of the Medical Society of Virginia. His wife and three brothers survive him.

**Dr. William Turbin Holland Brantley,**

Bethel, N. C., died May 15, 1929, of acute nephritis. He was a graduate of the class of '27 of the Medical College of Virginia and was thirty-seven years old.



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# Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 56, No. 6.  
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RICHMOND, VA., SEPTEMBER, 1929.

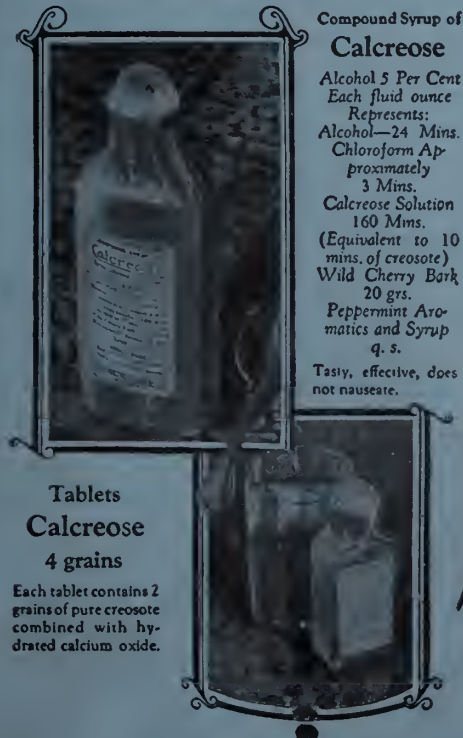
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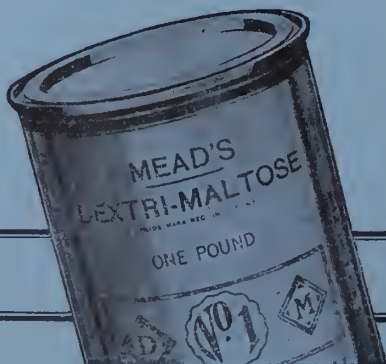
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## VERTEX PRESENTATION WITH THE OCCIPUT POSTERIOR—THE MOST FREQUENT CAUSE OF INTERVENTION IN LABOR.\*

By PRENTISS WILLSON, M. D., Washington, D. C.

Professor of Obstetrics, Georgetown University Medical School; Obstetrician-in-Chief, Georgetown University Hospital; Associate in Obstetrics, Columbia Hospital for Women.

Perusal of the mortality statistics of child-birth in the birth registration area of the United States, which now embraces forty of the forty-eight states, affords scant comfort for one who wishes the best of obstetrical practice in his own country. The average maternal mortality, expressed as deaths per 10,000 live births, for the thirteen years from 1915 to 1927 inclusive, is 69.0, the lowest rate being for 1915, 61, and the highest for 1918, 92. This average rate of 69.0 for the birth registration area may be compared with the average rates for the following countries during the same period:

Denmark .....	23.2
Netherlands .....	26.1
Sweden .....	26.7
Norway .....	27.9
Uruguay .....	28.0
Italy .....	28.2
Hungary .....	30.1
Czechoslovakia .....	32.7
Japan .....	33.5
Finland .....	35.0
England and Wales .....	40.1
Switzerland .....	47.8
North Ireland .....	48.1
Germany .....	48.5
Irish Free State .....	49.8
Spain .....	51.2
New Zealand .....	52.1
Australia .....	52.5
Salvador .....	53.8
Canada .....	55.5
Belgium .....	58.0
Scotland .....	62.5
United States .....	69.0
Chile .....	72.4

It is useless for the medical profession to attempt to avoid the full implication of these statistics: We only get deeper in the mire. The returns show that in not one, but several states the counties with the largest number of

births reported by midwives show the lowest maternal mortality rates, a finding certainly barren of comfort for the medical profession. Furthermore, the average rates for the thirteen years ending in 1927, for the urban and rural sections of the birth registration area in the United States are 75.3 and 62.1 respectively. Are these figures to be entirely explained on the basis of a supposedly better average health in the country? I think not. Lest some critic with more courage than knowledge should now come forward to claim that the situation in the country as a whole can certainly not accurately reflect that in the capital of the nation, let us now look into our local statistics. The average rate for the District of Columbia for the thirteen year period ending with 1927 is 89.7, which is 20.7 points higher than the rate of 69.0 for the birth registration area as a whole for the same period, and 14.4 points higher than the rate of 75.3 for the urban portion of the whole area. The large proportion of negroes in our population is sure to be advanced as a factor in the production of our high rates, but, fortunately or unfortunately, depending on the point of view, statistics are available on this point. Thus, our average rate for whites is found to be 71.5 and for colored 132.1, comparable to rates of 65.4 and 116.2 for the registration area as a whole for white and colored women respectively.

Recently Dr. Dorothy Reed Mendenhall, in a bulletin of the Children's Bureau of the Department of Labor entitled, "What is Happening to Mothers and Babies in the District of Columbia," has called attention to additional unfavorable aspects of our local statistics. She shows that a comparison of the average maternal death rate of Washington for the years 1924, 1925 and 1926 with that of five other cities with 2,000 or more colored births annually, shows a rate of 9.6 per 1,000 live births for Washington against rates for the same period of 5.6 for New York, 5.9 for Chicago, 6.6 for Baltimore, 7.3 for Detroit and 7.6 for Philadelphia. For the same period, in Washington,

\*Read before the Medical Society of the District of Columbia, March 20, 1929.

the average rates for white and colored, 7.3 and 14.6 respectively, are higher than those of any of the five cities named. May not our local situation be tersely summed up by the statement, unfortunately true, that it is three times safer for a white woman to have a baby in Denmark than in the District of Columbia?

It is not my purpose in this paper to attempt an elaborate investigation of the factors responsible for this local and national disgrace. Many might be mentioned, such as fundamental errors of omission and commission in obstetric teaching in the medical schools, lack of appreciation by the public of the dignity and importance of obstetric practice resulting in inadequate compensation of the obstetrician, various economic and social factors, and, finally, but not least in importance, the attempt of some of us medical men-in-the-street to emulate and follow the teaching of certain radical but highly placed clinicians who, because of the skill which comes with much practice and the facilities of their great clinics, to put it in the vernacular—"get by with murder." But when everything is done and said, in order to insure her safety, the woman who is to be blessed with a normal labor needs but ask two things of her medical attendant—that he keep clean and leave her alone. Danger, then, begins with intervention, for, without this, even uncleanness is comparatively innocuous. There are, unfortunately, all too many legitimate indications for intervention and many illegitimate reasons which, from time to time, have their vogue. Face, brow, breech, and transverse presentations, serious pelvic contraction, eclampsia, placenta praevia, ablatio placentae, cardiac decompensation, prolapse of the cord—all these come tramping to mind. But how often do we have these conditions to handle? Does their mismanagement account for our bad results? In some small degree, yes, of course, but certainly not for most of them, because of the comparative rarity of such complications. If, then, we who do obstetrics ask ourselves the question—What is the most frequent cause of difficulty in and consequent interference with labor?—the answer must be immediate—posterior varieties of vertex presentations. According to the most commonly accepted statistics, these have an incidence of about 20 per cent of all labors, being seen about six times more frequently in the right position than in the left. Unfortunately,

in my experience, these figures materially underestimate the frequency of R. O. P. My observation leads me to believe that a primary R. O. A. is more rarely seen than an L. O. P. and that the two together do not constitute 5 per cent of vertex cases. If this be accepted, it follows that 95 per cent of vertex cases are either L. O. A. or R. O. P., and I would place these in a relative frequency of about 60 per cent and 40 per cent respectively. Therefore, I am led to believe that in at least 40 per cent of all labors the obstetrician has to do with a posterior vertex presentation. These are the reasons which have led me, in an effort to make a very small and humble contribution looking toward the betterment of our local obstetrical results, to review this subject with you tonight, although I am fully aware that most of you are as familiar with it and as competent to handle it as I am.

#### ETIOLOGY

The cause of a posterior vertex is to be looked for in the most trivial departure from the completely successful operation of the law of accommodation which normally orients the fetus in its relation to the pelvis. This law predicates simply that the relation of the contained fetus to the containing uterus and of the contained uterus to the containing abdominal cavity will be that in which there is the most accurate coincidence between the contained and containing body. Hence, both the fetus, in its normal flexed attitude, and the uterus being ovoid in shape, the first major accommodation will be the coincidence of the two long axes—result, longitudinal presentation. Second, the flexed head, being less obtuse than the breech, will be made to coincide with the more pointed lower or cervical pole of the uterus—result, vertex presentation. Third, the longer of the two short diameters of the fetal ovoid, being an antero-posterior one from the spine to the front of the flexed extremities, is accommodated in the longer transverse diameter of the uterus, and the latter, undergoing a torsion on its long axis through an angle of forty-five degrees, from left to right in the great majority of cases, the fetal back will come to lie above the left ilio-pectineal eminence or the right sacro-iliac synchondrosis—result, L. O. A., or R. O. P. Fourth, the lateral margin of the uterus containing the broad, smooth, convex surface of the fetal back will be more accurately accommodated in the broad, smooth concavity



of the inner surface of the anterior abdominal wall than in the narrow, deep fossa to the right of the spine—result, L. O. A. Finally, only in cases where this last accommodation fails, and the broad back remains in the narrow posterior fossa, will a posterior vertex be produced. It will thus be seen that the relatively high frequency of the posterior vertex in comparison with other abnormal presentations is readily accounted for, since its production involves only the most trivial and minor departure from the entirely successful operation of the law of accommodation.

#### THE MECHANISM

Since a sound basis for any intervention with labor must be predicated on a thorough understanding of the mechanism involved, it is necessary now to consider the points of departure of the mechanism in R. O. P. from that in L. O. A. These differences are noted at two points, namely, in the mechanism of engagement and in that of internal rotation.

The attempt at engagement in both L. O. A. and R. O. P. occurs with the long diameters of the head in the right oblique diameter of the pelvic inlet, the occiput being anteriorly directed in the former, and posteriorly in the latter. The important difference lies in the relation of the bi-parietal diameter to the pelvic brim. This diameter lies much nearer the occiput than the sinciput, with the result that in L. O. A., since the occiput is anteriorly directed, it occupies the left oblique diameter of the inlet with normally over three centimeters of space to spare. In R. O. P., however, the occiput, being posteriorly placed at the right sacro-iliac synchondrosis, the bi-parietal diameter is thrown so far back in the pelvis that it comes to lie not in the left oblique but in a diameter, the sacro-cotyloid, extending from the mid-line at the sacral promontory to the right ilio-pectineal eminence. This diameter is barely sufficient for its accommodation, and in many cases moulding of the head is necessary to shorten the bi-parietal diameter for its passage.

The most striking difference in the mechanism, however, is seen in connection with internal rotation. In L. O. A., the long antero-posterior diameters of the head, still in the right oblique, are driven down against the gutter of the pelvic floor. Because of the shape of this gutter, with its sloping sides, concave upper surface and antero-posteriorly directed

long diameter, the advance of the head results in its antero-posterior diameters being promptly forced into coincidence with the antero-posterior diameter of the pelvic floor, to accomplish which the occiput swings through an arc of forty-five degrees from left to right from the left ilio-pectineal eminence and comes to lie under the symphysis pubis. Now, in R. O. P., were the same factors, and none other, at play, with advance of the head, the occiput should swing through an arc of forty-five degrees, from right to left, from the right sacro-iliac synchondrosis and come to lie in the hollow of the sacrum. Clinically, we know that such a rotation is noted infrequently, certainly not more often than once in twenty-five cases, and that usually, when labor does not become arrested, the occiput swings through an arc of one hundred and thirty-five degrees from right to left and comes to lie under the symphysis. In order to intelligently interfere with labor in cases in which rotation fails to occur, it is very important that we should understand the factors responsible for its normal production. To do this, it is necessary to consider the shape of the birth canal. The axis of its upper portion, if extended beyond the woman's body, would pass through the region of the umbilicus above and anteriorly, and through the lower part of the sacrum below and posteriorly; the axis of its lower portion, with the perineal gutter formed and the vulval ring displaced, with the woman on her back, from a vertical to almost a horizontal position, would pass through the center of the vulva in front of the symphysis above and anteriorly, and through the mid-portion of the sacrum below and posteriorly; the two axes forming approximately a right angle with each other in the lower central portion of the pelvis. It follows from this that were one to place a rigid steel cylinder of the shape and size of the fetus in the upper portion of the birth canal, its birth could only be accomplished by tearing out the posterior wall of the lower portion as far up as the lower part of the sacrum, and, therefore, that the ability of the fetus to bend, especially at the joint between its two major portions, the head and the trunk, is an essential contribution on its part to the successful accomplishment of labor. We know, of course, that in the course of its descent through the upper birth canal, with the proper equilibrium between the forces of expulsion

and resistance, the head becomes progressively flexed because the greater amount of force is brought to bear on the longer, anterior, sincipital arm of the head lever, until flexion is completed and arrested by the contact of the chin with the sternum. In L. O. A., when the head reaches the pelvic floor its progress is unarrested because it can now very readily extend on the trunk to take the right angled curve of the birth canal, with the result that anterior rotation of the occiput easily occurs for the reasons previously stated, bringing the head into the most favorable relationship to the canal. In R. O. P., on the other hand, while flexion occurs as readily as in L. O. A., when the head, in flexion, encounters the pelvic floor, an *impasse* develops because, at the same time, the right angled curve of the canal is also encountered; in order to progress, the head must bend on the trunk to take the curve, and, with the occiput to the rear, this can only take place by flexion which is already complete. There now occurs the extraordinary movement of internal rotation of the occiput anteriorly, through an arc of one hundred and thirty-five degrees, from right to left, from the sacro-iliac synchondrosis to the symphysis. This requires a rotation of the head on a vertical axis through its articulation with the spine sufficient to make the face look obliquely backward over one shoulder, and, while it has been shown that this degree of torsion in the fetus does not ordinarily damage the spine or cord, it is certain that, in some cases at least, the degree of torsion necessary is reduced by a corresponding rotation of the shoulders from the left to the right oblique. As a result of this movement, the head is brought into the same relation with the birth canal as though the occiput had originally been directed anteriorly and progress now goes forward because of the ability of the fetus to bend or break, to take the curve in the birth canal by extension of the head on the trunk. It is altogether probable that the causation of this extreme rotation is still imperfectly understood. In the opinion of the writer the most satisfactory explanation is, by all odds, that of Selheim. This authority has shown that in forcing a cylindrical body, capable of being bent in differing degrees in different directions, through a curved cylindrical canal, sufficient expulsive force develops a spinning movement in the contained body which causes it to rotate

into such a relation with the containing cylinder as to permit it take the curve by bending in the direction of which it is maximally capable. What occurs in an actual R. O. P. labor, then, granted adequate forces of expulsion and adequate but not excessive forces of resistance, is the development of a tangential force which serves to spin or rotate the head around its vertical axis (in some cases the whole fetus) so that the occiput is brought to the symphysis, and the ability of the head to bend on the trunk is brought into accurate coincidence with the shape of the canal.

In a small proportion of cases, 3 to 4 per cent, the occiput swings posteriorly into the hollow of the sacrum. This mechanism is more likely to be seen in any case where there is a diminution in the usual amount of resistance, a condition which may be contributed to by a small fetus, a justo-major pelvis, or any relaxed state of the pelvic floor, as from multiparity, birth of the first twin, or from the effects of hyosin-morphine, ethylene or low spinal anaesthesia. All of these conditions conduce to imperfect flexion through failure of resistance with the result that, on reaching the pelvic floor and the curve in the birth canal, progress in taking the curve is initiated by flexion of the head, whereupon the mechanism seen in an anterior vertex occurs and the long diameters of the head are merely forced into relation with the long diameter of the gutter of the pelvic floor and the occiput swings posteriorly from right to left into the sacral hollow. Even under these unfavorable circumstances, nature usually shows herself mistress of the situation and effects delivery. The head undergoes an exaggerated flexion and the brow becomes stemmed against the symphysis. The chest is now wedged down into the pelvis above the head which becomes markedly moulded by lengthening its occipitomenal diameter and, all too frequently, the acuteness of the angle in the birth canal is considerably diminished by the simple expedient of tearing out its posterior wall in the lower portion. The occiput ultimately escapes over the posterior commissure of the vulva or over the posterior margin of the resulting laceration, and, the face slipping down from under the symphysis, the birth of the head is completed.

#### CLINICAL COURSE

It is, of course, perfectly true that even in



primiparae, in many cases of R. O. P., or the much less frequent L. O. P., the course of labor is uneventfully toward a rapid and spontaneous termination. On the other hand, there can be no question that such labors are much less frequently observed in these cases than in the anterior varieties of the vertex, and anyone practicing obstetrics soon learns to recognize a clinical syndrome which definitely indicates a posterior occiput even before careful examination of the patient confirms the diagnosis. The clinical course in these cases is somewhat as follows: Premature rupture of the membranes before or early in the first stage is much more frequently observed. The labor gets under way slowly and hesitatingly. The pains are infrequent, with no definite periodicity, quite variable in intensity and of short duration. This primary inertia is variable in degree, usually changes toward a more normal type, and the pains gradually become harder, longer and more frequent. All too frequently, however, the inertia persists throughout the labor, or, after a longer or shorter period of quite normal labor, a secondary inertia develops, and this may occur in either the first or second stage. The morale of the patient is sorely taxed under these trying circumstances and, if not very firmly and tactfully handled, she may become hysterical and quite unmanageable. This frame of mind is very contagious, not only for her family, but, it is to be feared, for her physician, a point of great practical importance, and one which has been responsible for much ill-advised and untimely intervention. If this course of events is too prolonged, or, if proper measures are not instituted to insure rest, nutrition and fluid intake, the trend, as far as the general condition of the patient is concerned, is toward exhaustion, with acceleration of the pulse rate and, not infrequently, low grade fever. Fever is more likely to be noted in cases with prolonged rupture of the membranes, and probably is usually due to an infection in the amniotic sac rather than exhaustion alone, particularly since the uterine discharges in such cases are usually of a very foul odor.

As a rule the condition of the fetus need give little concern, no matter how the labor drags, as long as the membranes are unruptured, but with rupture the outlook, while usually good, is less favorable and intra-uterine death may occur from asphyxia intra-

cranial hemorrhage or infection, in which latter connection should be noted the not infrequent occurrence of neo-natal death from broncho-pneumonia.

Dilatation of the cervix proceeds with extreme slowness but, in the great majority of cases, does finally become complete. The view expressed by Williams that the tardy dilatation is the result of the inertia rather than the cause is, I believe, sound in most cases. Examination early in labor often discloses a relation of the cervix to the head not so frequently seen except in a posterior occiput. The head is deeply engaged in the pelvis. The internal os is dilated and the cervical canal is taken up and incorporated in the lower uterine segment which fits as tightly over the head as a skull cap. The external os is undilated and very small; the membranes may be unruptured but there is no forewater. In my experience the outlook for a prolonged cervical stage is just as likely, if not more so, in these cases as in those in which the head is unengaged with the bi-parietal diameter caught in the sacro-cotyloid. So small is the external os in this condition and so tight the fit of the lower segment over the head that one may readily fall into the error of diagnosing complete cervical dilatation, a very serious one if the decision to intervene is based on it. I was once asked to see, in consultation, an ear presentation; but the external auditory meatus, the supposed presence of which in the center of the pelvis had caused the diagnosis to be made, turned out to be the undilated external os in just such a case.

The completion of dilatation and retraction of the cervix over the head not infrequently marks the turning point in a prolonged and trying situation. With the onset of voluntary expulsive efforts the pains steady as to frequency, duration and intensity and progress may be promptly evidenced. On the other hand, all too often this favorable change is either not noted and the primary inertia of the first stage is continued into the second, or, after a brief accentuation, the condition reverts into a secondary inertia as bad or worse than the primary. There can be no question that the rotation of the occiput requires more force and a longer time for its accomplishment in posterior than in anterior cases. Because of the exhausted state of many patients at the beginning of the second stage, we are

therefore faced by a situation requiring more than the usual effort from a patient who, very frequently, has less than the usual physical reserve on which to draw. Under such circumstances, we naturally more often encounter arrest of the labor. This may occur at any point. With patience, its occurrence in the first stage is, fortunately, quite rare and the vast majority of patients will finally obtain complete cervical dilatation. In the second stage, arrest may take place with the occiput still obliquely posterior, after its rotation posteriorly into the hollow of the sacrum or at any stage of anterior rotation. Not infrequently rotation is much delayed and may occur very late in the second stage even when the head is distending the vulva.

#### MANAGEMENT

In discussing the management of occiput posterior cases, certain general considerations will be mentioned before taking up specific procedures aiming at delivery. It must be borne in mind that we are considering the uncomplicated case, as marked disproportion or some associated maternal or fetal condition may so dominate the picture as to point definitely toward early and radical intervention.

In the first place, the psychology of the patient merits attention. As the first stage drags on and on, the woman soon realizes that there is something wrong and, unless the situation is tactfully explained to her, panic ensues and a vicious circle is quickly established. My practice is not to talk over the prognosis with the patient in advance—she may be one of the fortunate in whom labor will proceed quickly and normally—but as soon as the labor demonstrates itself to be slow and dragging and questions are asked, I attempt to explain just what is likely to occur. The almost uniformly successful outcome of such cases is accentuated, but the time element involved is quite frankly explained. It is a fatal mistake to hold out hope of a speedy conclusion; when the course of events shows this to be false, the patient loses confidence in the physician and this is regained with difficulty or not at all. Much serious trouble may be forestalled by a frank talk with the family, the difficulties and dangers involved being explained and the point made that the labor is to be managed for the best interest of the mother.

In the worst cases, when the first stage may run on for forty-eight or even seventy-two

hours or more, the general condition of the patient needs careful watching. The question of rest is of paramount importance and morphine gives it most ideally. The size and weight of the woman considered, the dose should be large—enough to stop the labor and insure several hours of sound sleep. The bladder and bowels should be kept empty, the catheter and enemata being used if necessary. Nourishing food in small quantities and at frequent intervals is indicated unless nausea and vomiting are complications. Of even more importance than food, however, is keeping up the fluid intake and thus preventing the partial dehydration from which many of these women suffer. The course of labor should be followed by abdominal and rectal examination only and in most cases vaginal examination may be dispensed with entirely unless intervention is deemed necessary: an increased safety of the patient and a very pleasant sense of security of the physician will result from this course. Acceleration of the pulse rate and fever are signs of serious import and may add a sound objective basis to the patient's pleadings for relief to which, otherwise, a deaf ear must be turned as far as premature intervention is concerned.

Underlying the whole broad subject of intervention in this, or any other type of labor, there are certain general principles involved which, considering the radical trend of much recent obstetrical teaching, cannot be too often iterated. We may all of us profitably bear in mind that if the great majority of labors were not headed toward a spontaneous completion, the race would have long since come to an end; if the women of past ages had been as much in need of his services as the radical obstetrician would lead us now to believe, this bright adornment of modern civilization would have been left slumbering in the ovary of time. Intervention, then, should always be predicated on real, and not imaginary, necessity—certainly never on the convenience of the physician. Furthermore, all intervention increases the risk of infection, and this is true no matter how perfect the aseptic technique or how apparently trivial the procedure—even vaginal examination, for example. The physician is not to be held accountable for the nature of the ordeal of labor—he did not invent it—and his legitimate function with respect to it is to aim at the birth of a healthy baby without undue



traumatism, permanent damage or loss of reproductive capacity for the mother, and with as much relief of pain as is consistent with the safety of each. When he attempts to recast the whole process along lines which he conceives to be an improvement on nature, his patient all too frequently comes to grief, a fate which he himself merits, but, due to the ignorance of the laity, unfortunately usually escapes. The question of the relative importance of the lives of the mother and baby is also in need, or so it seems to me, of some general clarification of view. In this day and generation we may thank God that the actual destruction of the live baby almost never presents itself as a possible solution, no matter how great the difficulty. And yet there can be no question that the mother's life and reproductive health are the more important from no matter what point of view considered. Certainly our instructions from the husband, who employs us, are always to "save the mother." In this connection, I would lay down the principle that intervention in the supposed interest of the child which subjects the mother to any material increase of her own risk is unsound obstetrics, poor morality, bad ethics and anti-social in its tendencies. I do not wish to be misunderstood; I am not speaking now of destructive operations on the fetus, but merely of making it assume its share of the risks involved in these difficult situations. Furthermore, the attempt to rescue the fetus from a perilous situation through a birth canal which is as yet unprepared for its passage is as a rule, fraught with more danger to it than are the forces of labor to which it is exposed, and, therefore merely subjects the mother to additional risk with no compensating advantage to the baby. The result of this loose and specious method of thought is best shown, however, in the increasing number of Caesarean sections now being done for such indications. More will be said on this point later on.

Some wit was once asked for what the colloquial name of a certain railroad, the D. L. and W., stood, to which he replied: "Delay, Linger and Wait." This jest may well be taken as the summary of our correct policy toward the posterior occiput case. In most cases its intelligent application results in a successful and spontaneous labor. Intervention in the first stage is rarely indicated. It usually drags its weary way on to complete cervical

dilatation. In a few cases, with the head high, and the cervix one-half to two-thirds dilated and progress at a standstill, combined manual rotation of the head internally and the anterior shoulder externally will successfully convert the R. O. P. to an L. O. A.: if the body is turned, the new and much more favorable presentation will usually persist and the subsequent delivery may be left to the natural forces. I do not advocate the use of bags to hasten dilatation. They increase the risk of infection, render a subsequent Caesarean section much more dangerous, and tend to displace the presenting part, with the attending dangers of prolapse of the cord or conversion into a still more unfavorable presentation. Very occasionally the condition of the mother will indicate delivery with the first stage still uncompleted. Under these circumstances the resistance of the cervix should in every case be overcome before applying forceps. Unless the cervix yields to manual dilatation with the greatest ease, this is best accomplished by incision in the mid-line anteriorly and posteriorly, or, with more dilatation, by Dührsen's multiple incisions. It cannot be too much emphasized that intervention with incomplete dilatation is a serious procedure, only to be undertaken on the most definite and urgent indications.

The first stage completed, indications for intervention should be much more liberally interpreted. Evidence of foetal distress—changes in the rate, quality and rhythm of the heart sounds, excessive activity and the passage of meconium—points to the termination of labor. On the part of the mother, exhaustion, fever and an acceleration of the pulse rate, prolongation of the inertia of the first stage, secondary inertia, failure to make progress after a reasonable time or, and very important, a tendency toward tetanic uterine contraction, indicate intervention. This may be required with the labor in any stage of completion. The occiput may still be obliquely posterior, rotated into the hollow of the sacrum, or in any degree of anterior rotation, and the station may be anywhere from the pelvic brim to the perineum. The greater the progress the easier and safer the delivery and the better the prognosis for both mother and child. If the diagnosis of foetal death can be firmly established, no esthetic consideration should be allowed to interfere with craniotomy when this seems to

offer the mother the easiest delivery. With the head above the brim, version and extraction should be first considered. With engagement, with the occiput still obliquely posterior, the first question is regarding the means of rotation anteriorly. We have three courses, rotation manually, with ordinary forceps, the Scanzoni operation; or with the Kielland forceps. With the latter I have had no experience. Its advocates claim that it accomplishes rotation readily, without undue traumatism, and with the undoubted advantage that the head can be delivered without reapplication of the blades. In the Scanzoni operation, after rotation, the forceps must be removed and re-applied to make the pelvic curve, which is reversed by the rotation, coincide with the curve of the birth canal. I have done this operation many times; I always dread it and fear serious laceration of the levator muscles and fascia under the bladder. Manual rotation in my hands has proven safer and less traumatizing and is usually fairly readily accomplished if the anterior shoulder be turned with the other hand or by an assistant at the same time. Indeed, failing in the attempt at manual rotation, rather than do a Scanzoni, I now prefer to rotate into the hollow of the sacrum and deliver with the occiput to the rear. With a deep episiotomy and flexion of the head to bring the bregma under the symphysis, this is accomplished usually with surprisingly little difficulty and without undue trauma. Following successful anterior rotation, the forceps delivery is simple.

I am firmly convinced that in the handling of any obstetrical situation sound judgment with respect to the necessity for and time of intervention is as much if not more of an asset than expert operative skill, desirable as that is. Nowhere, I believe is this dictum truer than with regard to the question of Cesarean section in the type of case under discussion. In uncomplicated posterior occiput cases, by dividing the primiparous patients into three age groups of those below, say, thirty-two or three, between this and thirty-seven or eight, and above this age, the problem of Cesarean sections may be summed up by borrowing legal terminology. In the case of laparotomy in the first group, the burden of proof as to the justifiability of the procedure is certainly on the operator; in the second group it is still on the operator, but in a lessened degree; in the third

group it should certainly be shifted from the operator to his critic. Without any statistical evidence to support it, I strongly suspect that the alarming increase in the number of Caesareans performed in this country is largely due to the employment of the operation in this class of cases. I recently saw a young woman with a normal pelvis and small six-weeks' old baby who had been Caesareanized in New York City after six hours of labor, the only explanation vouchsafed her being that she was not making progress very rapidly. This unfortunate girl may be taken as a typical example of a group of individuals who are becoming a more and more frequently observed obstetrical problem. With twenty years or more of child-bearing before her, she faces a serious menace to her life every time she becomes pregnant. If properly advised as to the risk involved, she and her husband will probably elect sterilization for her following the next Caesarean, and the dictum, once a Caesarean, always a Caesarean, would seem to have a formidable array of expert opinion back of it. Having successfully passed the additional hazard to her life which the operation placed on her immediately, she faces now a risk of rupture of the uterus in a subsequent pregnancy or labor, and all the dangers of intra-peritoneal adhesions, intestinal obstruction, hernia through the scar, etc.—all of this because of what was undoubtedly a totally unnecessary and ill-advised operation. But this is not the time for a discussion of the dangers of Cesarean section: they are grave enough and manifold enough to make it imperative that it should never be employed except on very positive indications. In posterior occiput cases its employment is ordinarily a grave error in obstetrical judgment.

We have seen that, judged by our results, obstetrics in Washington is sadly in need of improvement. This paper may be interpreted as an earnest plea for more conservatism in handling a group of cases which always taxes our resources of sound judgment and adequate skill. It is felt that adherence to a conservative policy will contribute not unappreciably to an improvement in our results. The local maternal mortality rate would seem to be a subject concerning which this Society, in the interest of the good name of the profession, might well interest itself more keenly. But there are higher and more compelling reasons



for such an interest—reasons never to be better stated than in the words of the great poet, Oliver Wendell Holmes, who in 1843, in an essay on "The Contagiousness of Puerperal Fever," wrote:

"I have no wish to express any harsh feeling with regard to the painful subject which has come before us. If there are any so far excited by the story of these dreadful events that they ask for some word of indignant remonstrance to show that science does not turn the hearts of its followers into ice or stone, let me remind them that such words have been uttered by those who speak with an authority I could not claim. It is as a lesson rather than as a reproach that I call up the memory of these irreparable errors and wrongs. No tongue can tell the heart-breaking calamity they have caused; they have closed the eyes just opened upon a new world of love and happiness; they have bowed the strength of manhood into the dust; they have cast the helplessness of infancy into the stranger's arms, or bequeathed it, with less cruelty, the death of its dying parent. There is no tone deep enough for regret, and no voice loud enough for warning. The woman about to become a mother, or with her new-born infant upon her bosom, should be the object of trembling care and sympathy wherever she bears her tender burden or stretches her aching limbs. The very outcast of the streets has pity upon her sister in degradation, when the seal of promised maternity is impressed upon her. The remorseless vengeance of the law, brought down upon its victim by a machinery as sure as destiny, is arrested in its fall at a word which reveals her transient claim for mercy. The solemn prayer of the liturgy singles out her sorrows from the multiplied trials of life, to plead for her in the hour of peril. God forbid that any member of the profession to which she trusts her life, doubly precious at that eventful period, should hazard it negligently, unadvisedly, or selfishly!"

1801 Eye Street, Northwest.

#### USE OF THE OPHTHALMOSCOPE BY THE GENERAL PRACTITIONER.\*

By CLIFTON M. MILLER, M. D., F. A. C. S., Richmond, Va.

When von Helmholtz first discovered and used an ophthalmoscope a new epoch was made

not only in ophthalmology but in general medical diagnosis.

The fundus of the eye, containing the nerve fibres of the retina as well as the blood-vessels of the retina and choroid, is a fruitful source of study of disease changes. Sometimes the first manifestation of serious systemic disease is some interference with visual acuity, and a study of the fundus oculi leads to such other examinations as to make certain a diagnosis of serious pathology of some remote organ. There is scarcely a pathologic condition occurring in the deeper structures of the human eye that is not the result of some general systemic condition.

Realizing the truth of the foregoing statements, it has seemed to me that the ophthalmoscope as an aid to general medical diagnosis is an instrument of the greatest importance. The use of this instrument has been looked upon by those not skilled with it as something too technical for them to learn, and a doubt has existed in their minds as whether the results obtained in using it would justify the time spent in learning its use. Its use is as readily learned as that of most other instruments of precision, and while one may not become exceedingly skilled with it, if using it only occasionally, it gives him yet another point of approach in his methods of diagnosis. Here, as elsewhere, a full appreciation of what is normal should be had before one can come to the conclusion that a departure from the normal is present.

Human eyes are plentiful, and, while the fundus cannot always be studied satisfactorily without dilating the pupil, it frequently can be done, and the medical man who constantly has his ophthalmoscope on his desk can look into the eyes of a great number of patients in the course of a few days and will soon get the hang of the instrument and know what is the normal appearance of the fundus. It may take some time to learn just how much of a departure from an absolute normal is to be passed by before pathologic conditions are to be thought of, but this, too, will come with the study of a volume of cases, and it is a study fraught with interest at all times.

A blurring of the outline of the nerve head, particularly on the nasal side, does not necessarily indicate optic neuritis or intracranial pressure; it may be only an indication of eye strain from an uncorrected or improperly cor-

\*Read before the Stuart Circle Hospital Clinical Club, March 13, 1929.

rected error of refraction. But a rapid increase of this blurring found on examination a few days later may indicate serious disease of some sort which may require all of our diagnostic acuteness to discover and put us on our mettle to properly treat. It is not infrequently the case that the first indication of a serious systemic condition is discovered by noting changes in the fundus oculi as a result of frequent ophthalmoscopic examinations at short intervals.

So many systemic diseases have intra-ocular manifestations that it is almost impossible to mention them. Increased intracranial pressure, frequently indicated by changes of the optic nerve, is most usually thought of, but is not the most important, for it is not unusual that, by the time we have optic nerve changes, the other symptoms are such that the ophthalmoscopic findings are only confirmatory. On the other hand, it sometimes occurs fairly early, and the time of its occurrence in the train of symptoms may be an aid in diagnosis of the character and location of the trouble. All the symptoms we can supply ourselves with are not too many when we want to make an accurate diagnosis.

Syphilis in its ocular manifestations is manifold. Not only is the anterior half of the globe often attacked, but the ophthalmoscope reveals its ravages in the retina, choroid and optic nerve. While, from a diagnostic standpoint, these changes may not be so important as they were in the days prior to the use of serological tests, they may be sometimes of great service. Serological tests are not infallible, and by the piling up of clinical symptoms, we may be enabled to make a positive diagnosis in spite of negative serologic findings, and the ophthalmoscope frequently shows at least one important clinical picture.

Diabetes mellitus and chronic nephritis are frequently responsible for marked changes in the retina. In some cases, these changes are so characteristic that a diagnosis of nephritis can be made without further examination, though other examinations should, of course, be made. The changes due to diabetes are rarely so characteristic. Most frequently the changes present are such that one can only say they are either diabetic or nephritic, and leave the differentiation to the further systemic examination.

Just a few days ago a man of forty presented

himself to me on account of lowered vision in his right eye. He was a hearty man whose work was largely out-of-doors and he was not aware of any trouble except the interference with vision. Ophthalmoscopic examination showed changes in the right fundus which were due either to nephritis or diabetes mellitus, and further examination at the hands of his physician showed a chronic nephritis. This man's father and brother died of chronic nephritis. If eye changes had not occurred, he would have probably gone for a year or more before seeking counsel. His physician gives a good prognosis in regard to his hope of longevity; this probably would have been less good if he had been delayed six months in going under treatment. The prognosis in regard to his eye is not so good. There have been some of these cases where marked improvement in vision took place under a proper systemic regimen, but it cannot be looked for.

Albuminuric retinitis of pregnancy usually recovers full vision. The study of the optic fundus in arteriosclerosis and high blood pressure from any cause presents many interesting pictures and gives a better understanding of the condition with which we are dealing.

A certain picture seen in the fundus will enable us to state as a fact, though we will find there are rather frequent exceptions, that somewhere in the direct ancestry of that person, usually a man, there had been a union between two close relatives, probably first cousins. This is the condition known as retinitis pigmentosa, and its most annoying subjective symptom is night blindness. It is an inherited condition and may be retained in a family for generations, usually being present in the males in the proportion of about two and a half to one.

No attempt has been made to acquaint you with all the conditions of the fundus oculi that may be revealed by the use of the ophthalmoscope. Only a few outstanding points have been touched upon in an endeavor to arouse your interest in its use as an addition to your diagnostic armamentarium. The more you use it, the greater will become your skill in its use and the better you will be pleased with it. It is an instrument worthy of a place alongside the sphygmomanometer for everyday and constant use.

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### SOPHISM IN DERMATOLOGY.\*

By WALTER JAMES HIGHMAN, M. D., New York, N. Y.

It is a curious reflection on physicians that diseases of the skin constitute a specialty. The surface of the body, it must be conceded, is not hard to see, nor is it beyond average perception to detect when it is abnormal. It requires only two of the five special senses. Moreover, the skin is visible before death. It can be regarded without preliminary dissolution or surgical mediation as is required for the viscera. There is something final about removing a heart or kidney or spleen in order to become acquainted with its morbid changes. The clinical study of skin lesions is a branch of gross pathology the approach to which is without vital menace to the patient and without effort to the observer. But the ordinary practitioner knows nothing much about the skin—for one reason, because it has the unromantic quality of nearness. It is a field not remote enough to seem unduly green. No fences need be hurdled, no eminences scaled, no streams forded to get to it. It is next door, not Eldorado.

Astonishing, apparently, that this should be, considering the universal cry for autopsies; the belief that medical knowledge depends on study of diseased tissue. The diseased skin being within the reach of all studiously minded, why this intellectual paradox? It is partly due to disregard of what is obvious, or every physician would be a good clinical dermatologist; and partly due to an external circumstance, or every physician could be a good clinical dermatologist.

This external circumstance is the language of dermatology, a horrendous tongue calculated to halt the hardy and alarm the timid or inert. It was a classic habit to describe dermatoses in terms of a Latin and Greek medical vulgate few people have cared to master. The manner of dermatologic speech dominated the matter to which it applied. A dermatologist fixed himself in the annals of his kind by means of his surname in the Latin genitive case. This is how. There is an eruption which in English might be pictured as variously shaped, swollen red spots. It was first described by Hebra as *erythema multiforme exudativum*, and qualified, in honor of the author, by adding his Latinized name in parentheses—*Hebrae*. Of about five or six hundred named cutaneous

syndromes, dermatoses, or what not, probably over a third are baptized according to this tradition. Here is another type of label, *érythrodermie pityriasique en plaques disséminées* (Brocq). Would one expect this to be identical with *xanthoerythroderma perstans* (Crocker)? Could anyone imagine that these are synonymous with *parapsoriasis en plaques*? Or that *parapsoriasis* is possibly identical with a condition called *parakeratosis variegata*? Could the disease, indeed, be visualized from the description as small or large, yellowish-red to buff, superficially scaling, uninfiltated spots? Or even realizing this, is any clue given as to the nature of the disease?

Thus mastering clinical dermatology involves learning a jargon which in itself bears no relation to the essentials of morbid skin. It implies no understanding of the cause or nature of skin diseases. It furnishes no key to their pathogenesis. It is as purely descriptive as the botanist's or entomologist's terms. What dermatology needed was a Darwin, a Huxley, and a Romanes to coordinate scattered data into the form of an intellectual synthesis, a reasonable and reasoned branch of science. The moment of this attempt finally dawned, and then and thereafter the dusk of dermatology suffered some dissipation, but before this moment arrived a sort of false dawn appeared of which the very terminology that is being discussed was a sign. This requires an explanatory word.

British physicians have a clinical sixth sense. Harvey, John Hunter, Brodie, Bright, Stokes, Burdock and Osler illustrate what is meant. With objectivity amounting to genius they distil from bedside experience scientific essentials as valuable as anything that can be derived from set laboratory problems. A little over a century ago, Willan, a dermatologist endowed with this native clinical acumen, brought to bear on his specialty a system of reasoning which, had it been followed out, would have altered the history of cutaneous medicine. There would have been no such separation of dermatology from general medicine as did occur. He sought the general medical factors he believed inherent in skin diseases. His untimely death left the task to Bateman, his most inspired pupil. There the line ended in England until the final quarter of the last century. Willan would probably have been able to purge dermatology

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of much of its fanciful past, but matters took a different course. From 1840 to 1890, in France, Germany and Austria, the specialty fell under the guidance of a group of descriptive observers with keen eyes for details. This led to the differentiation and naming of several hundred skin diseases. Cazenave, Dévergie, Hardy, Hebra, Kaposi, Neumann, and later, Unna, Darier, Brocq, Ehrmann, Wilson, Jadassohn, Neisser, are among the great descriptive dermatologists, the second group linking the last century with this. Nor have the names been exhausted. In England we might have added Crocker and the two Foxes; in America, James C. White, Bowen, Duhring, Stellwagon, Zeissler and Lustgarten.

The over-elaboration inherent in this stage of dermatologic evolution served a great purpose. It identified and objectively classified practically all the cutaneous syndromes known today. Therein lay both the virtue and vice of dermatology. The virtue is a positive one. The vocabulary and material of clinical cutaneous medicine are established. The point of departure from which must start scientific growth of the subject is set. No dermatologist merits the title who has not mastered these essentials. They are its rhetoric and grammar. They are the foundation of dermatology. The vice is that descriptive dermatology in no wise tends to penetrate the nature and cause of skin diseases. It is far easier to name symptom complexes than it is to study what occasions them; than to isolate the bonds uniting what appears divergent, or separating what appears related, for objective features provide no clue to origins, to the actual interrelation among skin manifestations, or, of these in turn, with internal derangements, diseases or disturbances. Thus, dermatologists resemble to the outsider a priesthood mumbling a disjointed litany at the foot of a vague shrine. To give a group of signs and symptoms a convenient identification is but tentative progress. It approaches no reality. It explains nothing. It establishes no scientific hold on etiology, the discovery of which furnishes the only avenue of approach to intelligent treatment, actual or preventive.

To this very day a conclave of dermatologists is eloquent only to the extent a case is debatable, if of its nature little or nothing is known. Be the case exhaustively analyzed, all relevant data elicited, its cause and character

ascertained, incorrigible dermatologists are inarticulate. More than this, they appear chagrined, as though a rostrum had been spirited away from under their oracular feet. Thus the foundation of dermatology becomes its first great sophism in two ways; on the part of the dermatologist through translating what should be no more than elementary to him into something more momentous than it can possibly be; on the part of the general practitioner in fostering within his own mind the belief that the subject is detached, verbose and flippant. Both are reasoning falsely. Dermatologists are converted into Pharisees, general physicians into jibing mockers ignoring the one organ they could with greatest ease know something about. Both, therefore, are equally culpable in sustaining a false note in medicine, in creating an intellectual dissonance. But an almost impalpable tendency asserted itself in the final quarter of the last century. Unna, Neisser, and later Ehrmann, Jadassohn and Lustgarten, were not only descriptive dermatologists, but began to appraise skin diseases according to new standards. Long before, the idea of diathesis had occupied French and English students, a sort of bastard heritage of humoral pathology, a latter day classicism. What little merit this philosophic error possessed lay in its stimulating reflection on the possible dependence of skin upon internal disturbances. This became rational, or rather entirely metamorphosed, as knowledge of morbid biology with gathering momentum carried along medicine in all its aspects. Almost at the same time Pasteur's and Virchow's work bore fruit. The proof of the parasitic nature of infection, and of the morbid changes of tissue in terms of cell pathology, revolutionized all conceptions of disease. Later, the discoveries of Ehrlich, Metchnikoff and Wright in relation to immunity, and Richet's disclosures as to anaphylaxis, gave medicine its present stamp.

Nor could dermatology withstand this intellectual onslaught, however doubtfully the retiring invincibles continued to fight reason with language. Today there are still rear guard actions, for this was a tenacious soldiery, and the end is not yet. But replacements have been made from a different, a newer draft, bringing with them a fresh vigor, but one which unhappily harbors other seeds intellectually ominous.



Throughout the world there are scores of dermatologists who are in effect as enlightened as physicians can be, and many more scores who mouth the new enlightenment little understanding its significance. Side by side with these are those echoing the older order of things, who still, whatever the explanation for the anachronism, regard dermatology as a linguistic feat. These will not be discussed. Their days are numbered and shortly they will in the nature of things become impalpable shadows. In passing it may be mourned of these, as of Lycidas:

"They shall not welter to the parching wind  
Without the mead of some melodious tear."

This tear is appreciative rather than melodious, and shed for lifeless forms that grew as great as they could, but not as great as they should have. They served well, but could not expand. Dermatology outstripped them, but so far as they could follow they followed; and what they knew everyone today must also know if he would be a dermatologist. There is nothing ludicrous in this except when people who should be wiser still regard descriptive dermatology as more than the groundwork of dermatology; and when other physicians not conversant with modern dermatology still think of it in archaic terms, giving testimony only to their own illiteracy in so doing. And this group constitutes the majority of contemporary non-dermatologists.

Modern dermatology and modern dermatologists are of what this paper treats. It rapidly became obvious that the skin was not an organ independent of other bodily influences. In America particularly this view asserted itself early, then in Edinburgh, and finally on the Continent where the ancient regime was most firmly intrenched. When it did reach the Continent the idea was more scientifically pursued, but with less bedside practicality. Continental physicians have always been patronizing toward the Americans, a reaction doing them little enough credit and nurtured by an insular conceit not warranted by conditions. As regards the every day application of medical knowledge at the bedside, in hospitals and in surgery, Continental medicine is archaic compared with American. In its purely scientific aspects, however, American medicine compared with European medicine may still be relatively ingenuous, but the gap is closing. This is also true of American dermatology.

The Europeans have no talent for therapeutic nicety worth mentioning in the same breath with our's, although in theory it is possible we must still defer to them. And nevertheless it was from America that the first real challenge issued against descriptive dermatology as such.

The earliest attempts in this direction were purely as to treatment. The effect of arsenic in some dermatoses, notably lichen planus and psoriasis, had long been known. But its wide and purposeless administration in nearly all eruptions was an absurdity that constitutes a historic sophism, and indicates the mental slant that determines this sort of intellectual error. It is this habit of mind which leads to many inaccuracies of thought, and which leads to irrelevant conclusions not only in diagnosis but in treatment. Nor are only dermatologists reprehensible. Internists treating skin diseases, although they may know nothing about them, prescribe arsenic even less advisedly. These are not only sophists, but, so far as skin diseases go, ignoramuses as well. It will be noted that sophism in dermatology never applies alone to the specialists, but always in a parallel or supplementary way, also to physicians at large.

Together with arsenic as the favorite medication, vague dietetic and intestinal regimes were outlined. Some dermatoses were regarded as rheumatic in nature. In England psoriasis, together with every other unexplained disease, was looked upon as gouty, and colchicum flowed. Fresh air, rest, repose of mind, were emphasized as therapeutically important, and who will deny them as much importance in disease as in health? To dwell upon them though is even more amusing than it is trite, for what penetration is there in admitting that life is sustained by proper food, clothing, rest, shelter, and fresh air? Psoriasis and eczema are found in athletes, acne in the young who are living vigorously. Has any one seen these conditions affected *pro* or *con* by applying the principles mentioned above? Yet this sort of thing, although it indicates an effort to regard dermatoses from an internist viewpoint, was what went on until more complex hypotheses crept into clinical medicine, and into dermatology. Was this sophistry so much as groping in the dark? Were dermatologists any more culpable than internists? Not at all!

With growth of medical knowledge disease began to be reviewed in terms of metabolic and ductless gland disturbances, and in relation to infection, and allergy. Treatment was modified by what was discovered, or by fancied truths determined in these fields. In addition, physiotherapy in various forms asserted itself. Dermatology too felt the effect of these movements. Much that is good, and a great deal that is nonsensical, issued from all of this. The good inheres in the actual value of all knowledge, and in the measure to which knowledge is used with understanding. The nonsense is due to its misapplication by minds incapable, through individual limitations or inadequate training, of possibly grasping anything. This, in turn, is the result of improper medical and specialistic education, a broad subject that can be no more than mentioned in this paper, and which merits serious reflection. Suffice it to state that the present tendency of medical education to emphasize artisanship rather than art and science is a fundamental cultural error for which society will pay dearly in more ways than one, but chiefly because cleverness rather than soundness will determine success in practice. The scientifically inclined will be driven out of medicine, because neither medical schools nor the public are discriminating enough to distinguish between mind and matter.

Metabolic disturbances, as demonstrable by nitrogen, sugar and like determinations were held accountable for numerous skin diseases. Psoriasis is an outstanding example. In England it had long been regarded as gouty in origin. Bulkley in New York, forbade his patients all nitrogenous food. Schamberg demonstrated by laboratory methods a remarkable disturbance of nitrogen metabolism. The details need not be elaborated. Had there been any fundamental significance to any of this, psoriasis should disappear with regulation of the underlying cause, without local treatment. It does not so disappear. Nevertheless, psoriatics are treated as if the delusions recorded were fact, the dereliction being even commoner among internists than dermatologists. So far as the consistent effect of anything medical on psoriasis is concerned, its mysterious and capricious disappearance and appearance might as well be considered an act of God. Eczema is explained in a dozen different ways, among others as a nitrogen disturbance by some, a

carbohydrate disturbance by others. Laboratory evidence supporting any personal bias exists. Its disappearance under thus indicated forms of treatment is yet to be reported. Since the studies in question were sincerely conducted, it remains to find the error in reasoning made by the investigators. Undoubtedly psoriasis and eczema exist in people with raised blood nitrogen or sugar. But this is not cause and effect. It would be just as reasonable on the evidence at hand to try to reduce the blood nitrogen by curing the psoriasis or eczema as to attempt the reverse, as is done. The first is more frankly ludicrous and that is why it is not tried. Sophistry is the underlying flaw, sophistry of which dermatologists, chemists, and a battalion of internists, are equally guilty. The fact remains that nothing is known of the cause of psoriasis today, but a great deal about that of eczema, and eczema clearly is not often related to this type of metabolic disturbance, but to another group of phenomena, as will be shown below.

About fifteen years ago, Schwartz and I found the blood sugar raised in a substantial minority of cases of skin suppurations, like acne, and in the seborrheas. At the same time, Pels reported similar findings with reference to the erythemas. The late Dr. McGlasson came to similar conclusions as to eczema. Thus a wide range of unrelated dermatoses have been ascribed to disturbed carbohydrate metabolism. What is true, evidently, is that many people with a variety of skin diseases also have hyperglycemia. From this point on, what was said in the previous paragraph may here be repeated with equal force. But the superstition persists that candy is equally responsible with red beef and burgundy for a great many disturbances we know nothing about, the explanation of which will some day be found in a yet undiscovered infection, idiosyncrasy or disturbance of pubescence or the autonomic nervous system. Scientific dermatologists know this and treat the fact with humility, with the personal risk that often recompenses intellectual honesty, while less sincere or less well trained colleagues reap a harvest with jejune fallacies which satisfy a public demanding tangibles however wrongly conceived. Pragmatism thrives on sophistry.

Two known disturbances of the ductless glands cause the skin manifestations of myxedema and Addison's disease. The con-



genital epidermal dystrophy gives evidence of being the result of a deranged thyroid, and ichthyosis may be so occasioned. For this reason, all forms of excessive dryness of the skin and hyperpigmentation have been glibly adopted as related to the conditions above, and the amount of thyroid substance empirically administered for such dermatoses cannot be estimated. Realizing that most inflammations end in scaling, and many in hyperpigmentation, without any evidence of ductless gland effect, it can be readily understood how faulty any reasoning is which ascribes to the endocrines any and every manifestation not otherwise explainable. Proof is needed, and proof is exactly what is lacking. Undoubtedly some skin changes are so caused, although they have not yet been classified with any degree of plausibility, let alone precision. But ten years ago the wish was father to the thought and the wish was translated into action. The only scientific evidence admissible would be the cure of a skin disease under endocrine therapy, without local treatment, as may happen in myxedema, or the production of skin lesions by suitable experimentation, or consistently in relation to gland disease, as in the Addison syndrome. An eruption plus lowered or raised basal metabolism cannot be interpreted in terms of cause and effect. Only the possibility that such a thing may occur is conceivable except in minds too sanguine to be scientific. Not only dermatologists of easy conviction, but internists have fallen into this error. Unreasoning optimism fosters sophistry.

The majority of infectious skin diseases are simple to understand and not difficult to control. Perhaps tuberculosis is the hardest to treat effectively. But conditions like tuberculosis, lepra, rhinoscleroma, the fungus dermatoses, the various suppurative affections, are at least etiologically clear. Much is still unknown, but not in respects materially affecting practical medicine. It is rather the doctrine of focal infection that stimulates flights of dermatologic fancy. The mere fact that countless teeth and tonsils have been extirpated unnecessarily recalls the craze for oophorectomy about thirty years ago. Past folly always seems ludicrous. We lack perspective about our own. This absence of reason is not vicious. Teeth and tonsils are not ovaries, but the attitude governing the surgical application of

our focal fetish is the same as that of yore connected with the sacrificial ovaries. It is as stupid. Not teeth and tonsils alone may be the sites of focal infection. Moreover the presence of a focal infection cannot possibly explain every other coexisting illness. It may, but the burden of proof is rarely carried intelligently. It is easy to be misled. I recall a patient with dermatitis exfoliativa who seemed to be succumbing to it rapidly. He had about a dozen stumps of teeth left, many of which were infected. In order to spend his last days in buccal comfort he had the teeth drawn. The idea had not occurred to me. Within a week his skin was normal. Thus inspired, I ordered the infected teeth extracted of my next similarly affected patient. All that disappeared was the teeth. It is known that the eruption in question is seen in general tuberculosis, leucemia, Hodgkin's disease and mycosis fungoides. Was the healing of the skin in the case reported coincidence, or due to the extraction of the teeth? It might have been either.

The most serious sophistry engendered by the doctrine of focal infection arises as the following will illustrate. A paper on zoster was being discussed at a dermatologic meeting. One speaker declared the disease was due to focal infection. He animadverted to teeth and tonsils and supported his contention by stating that zoster treated on this assumption did not recur. Zoster is a self-limited disease that rarely recurs. It acts as though it were due to a specific infection producing permanent immunity. In view of this, the absurdity of the speaker is patent. Here is sophistry plus. Another writer has said the same sort of thing about pityriasis rosea, making a similar type of error. Pityriasis rosea is a characteristic, self-limited exanthem, occurring mainly in two epidemic peaks in the spring and fall. I have seen hundreds of cases and have yet to observe a greater incidence of tonsil disease in people with pityriasis rosea than in people otherwise diseased or with normal skin. Lupus erythematosus, eczema, prurigo, urticaria, psoriasis itself have been ascribed to focal infection, and the tonsils always or teeth, are incriminated as if other foci might not exist, or as if any new etiologic hypothesis could fail to be a blanket explanation for everything unexplained. And always, save for temperate conservatives, new theories are exploited. Nor

is the specialist solely to blame. The general practitioner, too, lured by something tangible and ready-made, joins the orgy of half-baked reasoning, subscribing in practice to what he pretends to mock in theory. There is no doubt that focal infection is a significant phenomenon, but there is no reason to believe it consistently accounts for a single skin disease. No scientific evidence of its doing so has been furnished by any of its protagonists; instead they have emitted the thinnest of vaporings—subjective miasma, sophistry.

An ancient concept of the cause of disease is idiosyncrasy. It must be a fundamental one for it has cropped out again and again with renewed force and in many guises. Anaphylaxis, allergy, atopy, susceptibility, hypersusceptibility, are among these. They may have slightly different shades of meaning, but are not essentially unlike. Disease, broadly speaking, is due to the response of tissue to an injurious agent. In part, the virulence or poisoning potential of the agent is the determining factor; in part the peculiar receptivity of the tissue. The differences in individual reaction to a given poison, the fact that the strength or concentration of a poison may be important elements in the interrelationship indicate that a tissue is in some way peculiar if it reacts to the poison. Sometimes exposure to poison increases the resistance of tissue to it, sometimes it increases susceptibility. This depends either on the tissue, or the poison, or both. But here, too, the tissue must be regarded as peculiarly endowed. Nor does it alter the basic fact if the poison is manufactured in a pathogenic parasite, or in the course of ordinary or disordered metabolism, or is incorporated into the body, or applied to the body from without. Nor does it make any difference if the agent is chemical or physical. The underlying mechanism producing disease is an interreaction between a tissue and a poison. Doubtless the peculiarity inheres as much in the poison as in the tissue, but since man views things from the human standpoint, it is natural that he should think mainly in terms of his own organic structure. Hence, it is easy to understand why he ascribes the peculiarity to his own tissue. For this reason, disease must be regarded as the result of a peculiarity enabling tissue to react in a manner that produces the disease. This is idiosyncrasy, or if, subject to certain details of the

mechanism, another designation is preferred, the unalterable fact remains that disease exists because inherently tissue has the capacity to become morbid. All investigation and experience from the time of Richet to date corroborate this utterance—but this is a biologic, not a clinical concept.

Nearly fifteen years ago in an intensive study of the nature of eczema, I was convinced that three factors were involved in producing the disease, predisposing and precipitating causes, and skin receptivity. The details supporting this belief are too numerous for present recapitulation. Incidentally, it may be remarked that since then I have come to the conclusion that the same factors prevail in the production of all inflammatory dermatoses, whether infectious or not, and in some other skin conditions. Nor have I reason to doubt that all disease conforms to this interpretation. Following Schloss' striking publication on egg albumin urticaria, urticaria and related conditions were studied by means of percutaneous tests with foodstuffs and other products, and a certain amount of valuable information was gathered, but many inconsistencies in the method developed. In the meantime, similar tests were made in eczema with thoroughly disappointing results.

About seven years ago, Bloch, in Zurich, and I, in New York, ignorant of each other's work, published studies on eczema largely substantiating the point of view I had expressed long before. Experimentally the need for a precipitating cause was established by applying to the surface of the skin suspected agents. The method employed was that of Markley, of Denver, in his case of guinea pig dermatitis. Thus, certain agents proved to be precipitants, others not. Simple examples of the phenomenon are rhus or bichloride dermatitis. In short, dermatitis venenata and eczema are conditioned by the same pathogenic machinery. Predisposition must play its role, or everyone would always be having dermatitis venenata. The skin must be receptive for a like reason. Thus the causative trinity is demonstrated. The important links in the chain are the receptivity of the skin and the precipitant. Bloch applies to this the term allergy. I applied no term. Only the validity of the phenomenon seemed important to me. What it was called did not. More recently it has been dubbed atopy. Just what the satisfaction



is in the act of increasing nomenclature is not quite apparent. The old term idiosyncrasy would answer quite well enough.

The term allergy, however, has taken hold. Now something is being done that it would be impossible for Bloch to do, or Klunder or any one else that understood the principles of biology or the rudiments of pathology. Dermatitis is being called allergic dermatitis on mere inspection. All dermatitis, all dermatoses are, or at least may be, allergic, and no one on earth can possibly discern, merely by looking at a case, if it is allergic. The proof is not forthcoming unless established. And yet the facile ocular dermatologist beholds a case and utters the fiat "allergic dermatitis." As a matter of fact, and by similar reasoning, "dermatitis venenata" is a faulty concept, for how can it be stated on inspection what the nature of anything is? Such facts must be demonstrated. They are nothing objective; they are processes, not things visible, palpable or perceptible. But the illiterate rush in where angels fear to tread, and the word omitted from the quotation perhaps describes them. Who can say, sophistry may only be folly, and sophists—but why be rude?

Clinically, to call dermatitis allergic dermatitis, is to say the patient has the syndrome because it's a gift, a talent, a peculiarity of his skin. It is, in short, equivalent to saying nothing nearly as convincing as what the skin has said by presenting the eruption. Thus, allergy, offered as a name, in itself unimportant, for an important phenomenon, has become over-emphasized, while what it designates is evidently not understood. The tail wags the dog to the accompaniment of ignorant pedantry enthroned and nodding an unperceptive head. This is the tragedy of all science bandied about by those who pursue it for ulterior ends rather than because of love for the truths it may unveil.

Physiotherapy plays an important part in cutaneous medicine. Leaving out any reference to electrolysis, the knife, the cautery, surgical endothermy, diathermy, and radium, let the discussion be confined to the roentgen ray. Obviously the purpose of medical practice is the cure or relief of sickness. No one other agent is as valuable as the roentgen ray in dermatology, and it is largely to the efforts of George MacKee that the method of its application has been simplified so that the agent

can easily and safely be employed. But this very fact has placed it within reach of the superficial or ulterior minded who have not sharply appraised indications and contraindications, and who employ radiotherapy when other treatment should first be exhausted; or who prefer ease to the strain of thinking. Fortunately, the instinct of self-preservation guarantees mechanical care, so that patients are not often injured, but, to my mind, general treatment of skin diseases will suffer in quality if the tendency to exploit the roentgen ray beyond its value persists. More and more dermatologists are reverting to this point of view after a positive bacchanal of roentgenization of which the last to approve would be seasoned men like MacKee, Pusey and many like them. The salvation of youthful enthusiasm is that time cures the disease, and the greatest abusers of the method are mellowing as their crow's feet appear. Nevertheless, a substantial minority of dermatologists and a host of dermatologic camp followers are still too avid as to machinery and inert as to mental exercise. But worst of all are the numerous physicians who refer patients to dermatologists with instructions to have an eruption "X-rayed." Here the sophistry is mostly with the internists except as to acne, the one condition in which roentgen ray treatment should perhaps be used without temporizing, because, on the whole, it cures acne faster and more frequently than any other management. And this is the one skin condition internists waste most time over with methods already regarded as inadequate a generation ago. A sop to science is the use of vaccines which in acne, at least, are practically valueless. So much for internists as dermatologists. Sophists? Let us be kind, yes.

Thus, omitting further immediate reference to mechanical therapy, it will be seen that modern dermatology differs from the older in its approach. Dermatology has become a special branch of general medicine, after having been detached therefrom apparently because of Willan's early death. The tendency is an enlightened one, however greatly sophistical abuses have crept it. Undoubtedly the union between dermatology and general medicine grows firmer day by day. Dermatology now may fairly be considered cutaneous medicine, a dermatologist an internist with special knowledge of the skin. A dermatologist must

be as conversant with general medicine as a general physician. He must know clinical medicine, serology, bacteriology, biochemistry, histology, immunity in relation to his specialty. He must have mastered physiotherapy and all other forms of treatment in their application to skin affections. And the ground work must be a thorough mastery of that ancient clinical dermatology, that descriptive, overdesignated old dermatology—in itself so curious—indeed, when detached from its context so ludicrous, and yet with all the dignity of the old regime, with all the importance of the alphabet and multiplication tables. Conceived in these proportions, and in these proportions it must be conceived, if internists choose to continue ridiculing, belittling dermatology and dermatologists, it will be the mockers rather than their targets that future generations will hold to scorn. The scope of the internist is rather less than that of the dermatologist.

Moreover, internists, if they cannot or will not become conversant with the skin, at least must respect those who do. The bed-side manner may excite euphoria in a cardiac, what with a slap on the back and a hearty, "well, how are we today, old thing?" But it can't remove skin lesions or stop itching. The patient with an eruption can use his eyes too and knows whether or not he is getting better. The dermatologist can accomplish little through suggestion, as can an internist treating his patient who no more is able to observe their internal lesions than the physician himself, and who knows as much, and, in truth, as little about them as he does. With all respect and a little reverse English, internists are invited to reflect on these matters and then decide whether they or the dermatologists are better entitled, if either are, to laugh at the others.

This, then, is the case for dermatologists. What is the case against them? It may be summed up in the statement that not enough of them conform to the necessary standards of training and equipment. The fault is less theirs than that of the narrow and inadequate basic training furnished by medical schools. Biology, chemistry, physiology, a reading knowledge of scientific German and French, are not sufficiently emphasized in the pre-medical curriculum. The medical curriculum is too much designed to train men for competitive examinations for internships, and in-

ternes are too crowded with routine to become more than artisans. Thus medical training is a warped thing. Its effects are apparent in all branches of medicine, and but few individuals can surmount early handicaps. No one would be a worse practitioner for not having his mind and individuality crushed out, whether he practiced general medicine or a specialty, even dermatology. With this apology in mind, and in the hope that a dean or two and a few faculties will see the point, it is submitted that some dermatologists are sound, some of them passable, and that many are sophists. They are graded like all other human beings. If a dermatosis is viewed from the general medical standpoint it is of first rate importance for the specialist to realize when the condition is local. If a dermatologist is an internist in cutaneous medicine, he must be sure to realize when a skin disease is external.

To put a case of scabies on proteid-free diet, to determine the basal metabolism in a frank case of impetigo, to extirpate teeth, tonsils and other organs *ad libitum*, for a self-limited dermatosis, to fancy it an accomplishment to add "allergic" to a noun, to say "good morning, you must be X-rayed," to a new patient, without first applying thought to the matter, are veritable abuses, and thoroughly inexcusable. Though they should not be condoned, they are no worse, however, than the bedside manner that overlooks an aortic aneurism in a patient advised to sojourn in France, see the Loire, and dally on the Riviera for over-strain, particularly if the patient happens to die of aforesaid aneurism the day before the scheduled sailing.

So much for the pot calling the kettle black! The positive accomplishments in dermatology in the last generation are: first, that the specialty has been raised to the standards of general medicine; second, that it is no longer a detached thing characterized by a meaningless vocabulary; third, that many skin conditions formerly just "diagnosed" now are cured. Among these are: acne, with the roentgen ray, lupus erythematosus, with gold; lupus vulgaris, with the Finsen ray; ringworm of the scalp, with the roentgen ray or thallium; and another dozen conditions, formerly regarded as hopeless, that can be ameliorated by one of several methods.

This paper grows too long; but may a few words more be added? Biochemistry, im-



munology, serology, endocrinology, will one day, when properly applied to cutaneous medicine, further elevate it. Substantially, disturbances coming under these captions are in a large measure the cause of skin diseases. The ground work is sound, but the methods of investigation and of applying the principles involved are still crude. The future of dermatology depends on greater refinement of methods and greater ingenuity in their application. The coming knowledge of vital staining, ferments, surface tension phenomena and colloid chemistry, immunity and protection, will bring us a knowledge of dermatology still only conceivable as a dream. The realization of this dream will dispel sophism in dermatology as it will sophism in general medicine. Who can state that sophism does not merely reflect the human equation, or that physicians exceed in this quality other men?

853 Seventh Avenue.

### ABDOMINAL HEMORRHAGE OF OVARIAN ORIGIN—CASE REPORT.

By BEVERLEY F. ECKLES, M. D., Galax, Va.

Mrs. M. L. C., aged 33, was admitted to St. Luke's Hospital, Richmond, Va., on April 4, 1925, at 1:30 A. M.

*History.*—She had two children, one a boy of 8½ years, the other a girl of 5. She had had a miscarriage seven years ago, followed by bleeding for which a curettement was done. Her menstruation was regular and normal, without pain. The last two periods were very slight.

*Present Illness.*—On March 5, 1925, while menstruating, she moved a heavy chair from one end of her apartment to the other. Next day she had severe pain all across the lower abdomen. It was a continuous dull pain that lasted twenty-four hours. Two weeks later it returned for a day, and then at three-day intervals she had recurrences which made her feel faint, thirsty and smothered.

March 27th to 31st, she passed through a normal menstrual period. This was followed by abdominal pain which was continuous and accompanied by a feeling of faintness.

During the night of April 3rd the child with whom she was sleeping kicked her in the left side, producing such intense pain that she got up and came to the hospital.

*Examination.*—She walked to her room

where immediate examination showed temperature of 99.4°; pulse 120; respiration 24; blood pressure 110/60. She was slightly pale. The abdomen was not distended, but was generally rigid, with tenderness through both lower quadrants, being a little more marked on the right side, where pressure caused her to complain of a faint and nauseated feeling.

The blood showed a total white count of 15,400 with 79 per cent polynuclears.

The urine was acid, with a trace of albumen, abundant acetone, and occasional pus cells and hyaline casts.

She was given morphine and an ice-cap, and became more comfortable but did not sleep. At eight o'clock her temperature was 98.4°; pulse 86; respiration 20. Acute appendicitis was diagnosed and operation advised.

Under anesthesia a pelvic examination disclosed a freely movable uterus. There were no pelvic masses, but the vaginal fornices and cul-de-sac felt boggy.

*Operation.*—A McBurney incision was made and the abdomen was found to contain a large quantity of free blood. Median section was then done and the blood was removed together with many large clots. Rapid inspection showed the uterus somewhat enlarged but otherwise normal; both tubes and the right ovary normal and the left ovary ruptured. The left ovary was removed with its tube. The appendix was very much thickened and subacutely inflamed, so appendectomy was done. The wound was closed without drainage. (Operation by Drs. Peple and Eckles).

*Her post-operative convalescence* was without incident, and she left the hospital in splendid condition. She has been heard from a number of times since she left and has remained in good health.

### PATHOLOGIC REPORT.

This report was made by Dr. S. W. Budd.

*Gross Description.*—The ovary measures 2x1½x1 inch. The capsule is pitted and shows a definite increase of fibrous tissue. In the substance of the ovary there are a number of small cysts which can be seen shining through the capsule. On the portion of the ovary nearest the fimbriated end of the tube there is present a blood clot about the size of a marble. On sectioning the ovary there are seen numerous small cysts.

*Microscopic examination* of the ovary in the

region of the clot shows the ovarian tissue to be heavily infiltrated with polymorphonuclear leucocytes and other evidence of inflammation. The ovarian tissue cells are widely separated by blood. There is no evidence of pregnancy in this ovary, nor is there any evidence so far that the hemorrhage originated from a follicle. The most likely point of origin of the hemorrhage is from a corpus luteum cyst rather than from an atretic follicle, though this cannot be definitely determined in the specimen.

*The pathologic findings* are an acute ovaritis with massive hemorrhage and a ruptured capsule.

*The tube* is a small fibrous tube slightly congested. Microscopic examination shows rather marked increase in fibrous tissue, and a decided dilatation of the vessels of the serous coat.

*The Appendix* is large, congested, edematous, and shows much new formed connective tissue in its serous coat. The lumen is dilated and patent throughout. It is filled with inspissated feces. The mucous membrane is red and congested, but there is no pus within the lumen nor in the appendiceal tissues.

*The pathologic diagnosis* is:

1. Subacute appendicitis.
2. Subacute salpingitis.
3. Acute ovaritis with massive hemorrhage and rupture.

#### INCIDENCE.

Consideration of the ovary as a source of hemorrhage is unusual in the experience of most of us. Consequently, the statement of Bovee<sup>1</sup> that "no other organ of the body is so frequently the seat of hemorrhage" is arresting but does not appear extreme when we consider that it includes all degrees of hemorrhage from a wide variety of causes. For instance, slight hemorrhage from the follicle is regarded as a normal incident of ovulation. Also, new growths, both benign and malignant, have been frequently responsible for ovarian bleeding. Hemorrhage into the walls or the interior of ovarian cysts occurs, either at or subsequent to twisting of the pedicle, and ovarian pregnancy with hemorrhage, while extremely rare, has been recorded.

Taking all these sources into consideration then, ovarian hemorrhage must be conceded to be of frequent occurrence. In spite of this frequency, however, it is rather uncommon for the

loss of blood to reach such proportions as to constitute a clinically recognizable hemorrhage, and in surgical practice it is really rare to find massive hemorrhage arising from a corpus luteum or an atretic follicle.

In 1917, Novak<sup>2</sup> found thirty-nine recorded cases of such hemorrhage of ovarian origin, to which he added another. These are exclusive of the cases of hemorrhage resulting from ruptured ovarian pregnancy or from the occasional rupture of large ovarian cysts.

*Frequency.*—It is believed that this condition is more common than the published case reports would indicate. In 1923, Strauss<sup>3</sup> reported a case and referred to two others, those of Smith and of Gordon Taylor. He said that "Smith reported his case before a meeting of gynecologists, and, in the discussion that followed, it was evident that many surgeons had encountered similar cases, but had not reported them. The result is that today the investigator believes it is a rare condition because of the few cases in the literature and the brief mention of it in the gynecologies, whereas, follicular or corpus luteum hemorrhage should really be considered not uncommon."

*Causes.*—Novak calls this "perforative ovarian hemorrhage," and says its causes are similar in a large measure to those of the non-perforative type in which the hemorrhage is confined in the ovary, giving rise to hematomas of various sizes. Predisposing causes are those conditions bringing about hyperemia of the ovary with engorgement of its vessels. Menstruation bears an intimate relationship, Bovee stating that nearly all cases occurred during menstrual life, most of them at or near a menstrual period. Of exciting causes, trauma is by far the most important.

*Pathology.*—Graves<sup>4</sup> says "Blood cysts of the ovary may result from the internal bleeding of follicles or corpus luteum cysts. According to Von Franque, hemorrhages may occur in the ovarian stroma in cases of chronic oophoritis which causes a special frangibility of the blood vessels. Such hemorrhages take place at the menstrual period, and repeated hemorrhages at consecutive menstruations may cause blood-cysts of considerable size. The fresh outflow of blood may produce severe pain and serious symptoms, even death."

Bovee believed that in most cases of stromal hemorrhage there is a chronic ovaritis, result-



ing in the development of additional connective tissue which prevents the rupture of the graafian follicle and causes its retention as a cyst. This sclerotic condition is followed by fatty degeneration of the blood vessel walls of the stroma, which favors rupture of the vessels, congested incident to ovulation, allowing the blood to escape either into the stroma or into the cysts.

Follicular hemorrhage is not so commonly associated with infection as the stromal hemorrhage is, but may itself be a cause of the stromal variety.

Whatever the cause, the bleeding practically always occurs from the thecal vessels of structures derived from graafian follicles.

Schumann<sup>5</sup> believes "that when massive hemorrhage takes place from an ovary there is usually, if not always, to be found some disease of the ovarian blood vessels. Normal ovaries do not give rise to massive hemorrhage."

*Symptoms and Diagnosis.*—Since symptoms generally are proportionate to the underlying organic disease, it follows that where the hemorrhage is slight the symptoms will be vague and indefinite. In such cases the diagnosis cannot be made with certainty, as there are no characteristic signs of this condition. However, since a few days' rest in bed is all the treatment necessary in this type, the exact diagnosis is not a matter of great practical importance. In graver degrees of hemorrhage, the most characteristic symptom is pain, usually throughout the lower abdomen, but occasionally more marked on the affected side. With the pain there will be evidences of internal hemorrhage varying in degree with the amount of blood lost.

The condition has apparently never been recognized prior to operation. Novak found that in eight cases acute appendicitis had been diagnosed and in nine ectopic pregnancy.

Crossen<sup>6</sup> remarks that "as in the vast majority of cases of spontaneous pelvic hemorrhage the cause is extrauterine pregnancy, this affection must be excluded in any particular case before any other diagnosis is permissible." Both Bovee and Schumann, however, have called attention to the grave injustice that may be done by diagnosing ectopic pregnancy without microscopic confirmation.

*Treatment.*—Where the loss of blood is

trivial and the symptoms are indefinite, rest in bed and the relief of pain may be all that is necessary. In these cases the condition may be suspected, but cannot be proved.

Where the hemorrhage is greater, the rules governing the treatment of ectopic pregnancy apply. These cases present symptoms of an acute abdominal crisis necessitating an operation, at which the condition will be revealed. Removal of the ovary will nearly always be necessary; but sometimes it will be possible to control the bleeding by suture without resection.

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## THE DIAGNOSIS AND TREATMENT OF STERILITY.\*

### Case Reports of Pregnancy.

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The subject of sterility covers such a large field that time does not permit a full discussion. This paper will be limited to the activity of the spermatozoa, the cervix and fallopian tubes, making mention only of many other phases which are operative in the act of reproduction.

The failure of efforts to establish the reproductive function are frequently due to the lack of knowledge of the physiology necessary for impregnation; in addition, the misunderstanding of the part played by existing pathology and the failure to differentiate between the physiologic and pathologic.

In listing the requirements for impregnation on the part of the male, we name first, normal production of spermatozoa. Without normal production, the examination, study and

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treatment of the female is not only useless but may even be detrimental to the patient and to prestige.

Normally, the male germ cells are developed in large numbers in the testicles, stored in the seminal vesicles until orgasm, at which time if there be no obstruction in the passages, several million sperm are ejaculated. If a specimen is taken from a condom or from the cervix and placed on a warm slide, inspection through the high power of the microscope will reveal at once a half dozen or more actively motile spermatozoa. These sex cells will be seen easily crossing the field against any current that may be present. A single sperm will often cross the field in five seconds. The presence of pus or bacteria are abnormal. There are variations in shape and motility of different sperm but any gross irregularity in shape must be considered abnormal.

According to Macomber, there are seventy-five to 125,000 sperm present in each cubic centimeter of normal semen with a total of 300 to 500 million sperm in one ejaculation. Here is a valuable point in sterility—although it requires only one spermatozoa to pierce and fertilize the ovum, any gross reduction in the number of sperm ejaculated goes hand in hand with lowered fertility, due to the lessened number, and frequently to lessened vitality of the sex cells.

The passage through the vas deferens, seminal vesicles and urethra must not be obstructed. Neither must there be any reduction of sperm vitality produced by contact with pus or chemical action during the exit. It is believed that in the normal the sperm are ejaculated directly into the cervical canal and that those that are to seek the ovum begin immediately upon their travel through the cervix into the fundus and fallopian tubes. If in the case of hypospadias or strictured urethra, the sperm are deposited in the vagina, or dribble out after the organ becomes flaccid, the immediate injurious effect of vaginal secretions may so lower the vitality that fertilization becomes impossible (Huhner.) At this point someone may ask, "How then do we have fertilization when the sperm are ejaculated only on to the vulva surface?" Usually in such cases the female is unmarried or a virgin, and the chemical action of these vaginal secretions are not so injurious as are those in the married woman. We rarely see pregnancy follow coitus inter-

ruptus in the married. The normal cervix either aids in the act of conception or it produces one of the greatest obstacles and barriers to impregnation.

The physiologic cervical secretion is small in amount, alkaline in reaction, and crystal clear. Microscopically, it contains an occasional white blood cell but no bacteria. Conditions of chronic hyperemia and low grade inflammation change the secretion in color, amount and consistency so that it becomes tenacious and plugs the cervical canal. This type of mucus will entangle the slender spermatozoa, hinder its progress upward, and at times entirely block the passage. The chemical activity of the pathologic acid mucus lowers the vitality of the sperm and they quickly die.

Other causes tending to produce such disturbed conditions in the cervix are trauma, frequently produced by dilatation and curettage. The dilatation in itself may occasionally be beneficial if lacerations are not produced but the curettage in the most of instances has no physiopathologic grounds for its use. It has been proven by Curtis that the corporeal endometrium does not harbor chronic infection, and why we should persist in traumatically removing a normal endometrium in hope that replacement with the same kind of tissue will aid in fecundation is beyond imagination. The body of the uterus plays practically no part in fertilization except as a passage for the sperm in its progress to meet the ovum. Our destructive curette may result in an atrophic endometritis which inhibits the proper nesting of a fertilized ovum.

The so-called erosion of the cervix plays its part preventing conception by changing the reaction of the mucus, helping to produce an abnormal secretion through the admission of bacteria and the production of chronic infection. There is no actual destruction of tissue as is indicated by the term "erosion" but there is an over-growth of columnar epithelium from the cervical canal which reaches down and covers the squamous epithelium normally present on the vaginal portio. If we examine the cervical mucus two hours after coitus and find normal active spermatozoa in good quantity we can immediately eliminate the male as a cause and almost entirely exclude the vagina or cervix. If the cervical mucus is free of sperm or contains only dead sex cells we must



then examine a warm condom or bottle specimen. If this examination reveals normal spermatozoa, either the male fails to deliver properly, or the cervical secretions are inimical to the life of the sperm and the cause must be sought.

If, after complete physical and laboratory examination of the male and female we are unable to find a cause for sterility, we must enter into a careful study of the function of the fallopian tubes. How unscientific it is for one of us to advise a dilatation and curettage

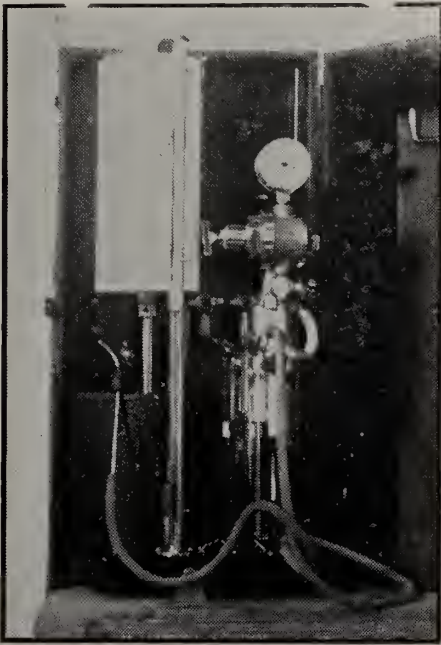


Fig. 1.—Improved apparatus now being used for uterotubal insufflation. The use of the Kymograph enables us to preserve a graphic chart of the activity of the tubes.

Upper Left—Kymographic drum.

Below—Mercury manometer with float and writing pen above.

To Right—Glass Syphon meter.

Below—Pressure reducing valve with gauge above. Carbon

dioxid cylinder behind.

when the necessary male sex cell has not been proven normal and the very important patency of the fallopian tubes has not been established. If a uterine sound will pass through the cervical canal, certainly the spermatozoa will. The fallopian tube is a four-inch musculo-membranous canal connecting the ovary with the uterine cavity. It is divided into four parts, the interstitial or uterine, the isthmus or narrow portion, the ampulla or dilated part, and the fimbria which is a turning outward of the lining membrane of the tube. This fimbria contains the abdominal opening which is only two millimeters in diameter while the uterine

aperture is even smaller. The tube has an outer layer of longitudinal muscle, an inner of circular muscle continuous with the uterus. The mucous membrane is thrown into folds or villi, and the epithelium is ciliated. It is necessary that we be familiar with the anatomy of the tube in order to understand the results produced by transuterine insufflation. All the work in connection with this test has followed the able leadership of Rubin, and credit is due him for giving us this great diagnostic aid.

The best time for making the Rubin test or transuterine insufflation is seven days after menstruation, the patient having refrained from coitus during that interval. At this time the endometrium is quiescent and the tube not congested. The test is contraindicated in the

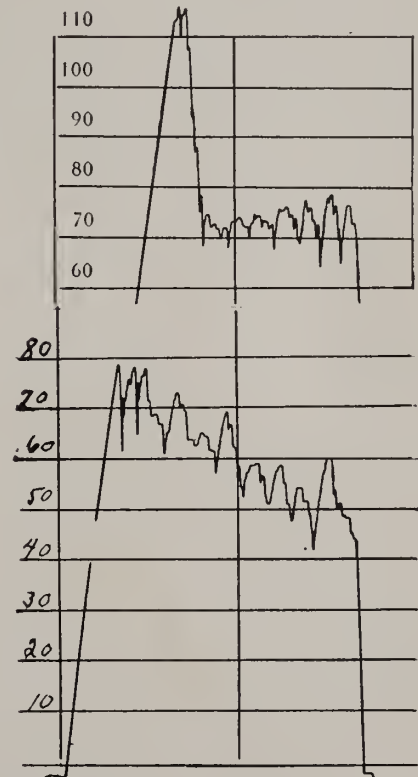


Fig. 2.—The lower line shows the activity of normal fallopian tubes. Pressure below 100 m.m. of mercury and distinct manometric fluctuations. The upper chart would indicate some impairment of patency. Pressure arising above 100 m.m. but below 150 m.m. manometric fluctuations present.

presence of fever, pelvic inflammation, salpingitis or purulent vaginal discharge. Strict asepsis is absolutely essential. The injection may be made with oxygen, carbon dioxide or air. We prefer not to use oxygen on account of its irritability. The apparatus consists of a small tank of carbon dioxide, a reducing

valve, mercury manometer, water filter volumeter, intrauterine cannula and nozzle. At the present time we have under construction in New York a recording device similar to the smoked drum used by Rubin. This will afford for study a pen and ink sketch of the activity of the fallopian tubes during insufflation. The normal tube produces sufficient resistance to force the column of mercury up to 100 m.m. when it drops ten to thirty points and continues to fluctuate so long as the gas flows in. An increase in intra-abdominal pressure (produced by a brisk cough) during the test is registered by a rise in the mercury. If the tubes are closed there will be no rise. The gas may be heard passing in by auscultation over the abdomen, provided there is no cervical leakage. In order to detect this leakage we fill the vagina with sterile water. Shoulder pain on assuming the erect posture is characteristic of patency. Fluoroscopic examination will demonstrate the gas intraperitoneally and is a positive proof of patency. There are patients

who have spasm of the circular fibers of the tube which partially or completely obstructs it. Following the suggestion of Meaker we have used antispasmodics prior to insufflation and produced pneumo-peritoneum where it had failed previously. Meaker reports several cases of pregnancy following the post-coital use of antispasmodics in this type of patient, and we have had one such experience. In certain cases we believe the tubes to be temporarily plugged with mucus or the fimbria closed by fine adhesions which causes an excessive initial rise in mercury followed by a sudden drop when the obstruction is removed. According to Rubin an initial rise of 100 m.m. or more, followed by a drop with little or no fluctuation, is characteristic of stricture. If the pressure rises to 200 m.m. and remains there it is positive evidence of obstruction.

The treatment of sterility depends upon the diagnosis and it is not only unscientific and detrimental to our reputation but unjustifiable to recommend medication and surgical inter-

No.	NAME	AGE	DATE	ONSET MENSES	TYPE	No. OF DAYS	AMOUNT	YRS. MARRIED	PREVIOUS DISEASES	CONTRA- CEPTIVES	FREQ. COITUS PER WEEK	PAINFUL MENSES	DESIRE	PREVIOUS OPERATION
1	H	28	10-23	13	28	5	Mod.	4	o	Douche	2	No	o	Thyroidectomy D. & C. & Stem.
2	C	27	11-24	16	28	5	H.	1	o	o	3	Sltg.	o	o
3	R	26	7-26	12	28	3	M.	6	Measles; Mumps; Typhoid fever; Malaria	Condom 2 yrs.	2	o	...	o
4	S	32	4-26	13	28	4	M.	5	Measles	o	?	o	o	Appendectomy Suspension
5	H	28	4-27	14	28	4	M.	3	Measles	o	2	.....	...	o
6	K	25	11-26	15	21	5	M.	4	Scarlet fever; Diphtheria; Mumps; Measles	Coitus interruptus 2 yrs.	1-2	o	o	o
7	P	30	7-24	13	26	3	Sc.	5	Mumps; Measles	Condom and Douche	2-3	o	...	o
8	S	24	7-25	14	28	5	H.	4	Scarlet fever; Diphtheria; Mumps; Typhoid fever; Appendicitis	Condom	2	o	...	D. & C. Stem Appendectomy
9	H	26	3-24	14	28	4	M.	5	Measles	Douche	2	o	o	o
10	J	34	2-27	13	28	4	M.	4	Measles	o	1-2	o	o	Myomectomy

NOTE: This table reads across both pages.



vention without grounds for either. It is also misuse of a patient's confidence to make her believe she can or cannot become pregnant without facts to warrant the statement.

The failure of the male to produce normal sperm, in the absence of infection or gross pathology, can often be corrected by improvement in diet, rest, change of surroundings, outdoor living and exercise. A male sterile from excessive coitus may quickly become fertile by the correction of this error. Reynolds and Macomber have shown conclusively in white mice that a deficiency in calcium always produces a state of lowered fertility and even sterility. Blair Bell, of Liverpool, has rendered many women fertile by adding calcium to their diet. An infection or obstruction to the genito-urinary tract should receive appropriate attention on the part of the urologist. An old chronic prostatitis may be a cause of lowered fertility in the male. The research of Macomber demonstrated that the mating of male and female, both of lowered fertility, re-

sulted in infrequent, or no conception, while the mating of two highly fertile adults resulted in frequent conception.

Stricture or hypospadias must be corrected if the male fails to deliver sperm on to the cervix.

A cervix, the seat of simple erosion, is best treated by radial cauterization with the electric knife. Chronic deep-seated infection of the endocervix that destroys the sperm can be corrected and often followed by pregnancy if we remove the glandular portion of the cervix and make a new canal as devised by Sturm-doff.

Displacement of the cervix by ante flexion or retroversion does not require treatment in itself if spermatozoa are found in the cervical mucus. There may be an associated stenosis, however, which would require correction. The presence of small submucous or intramural fibroids may prevent conception and their removal be followed by pregnancy. We have

REACT. VAGINA	CERVIX	CERVIX REACT.	UTERUS	OVARIES	URINE	HB.	B. P.	SPERM	TUBES	INSUFFILATION	TREATMENT	CON-CEIVED IN
A	Posterior	Ft. Acid	Slight retroflexion	Neg.	Neg.	70%	110-80	Active	Patent	100-60		30 Days
A	Posterior	Acid	Anterior	Neg.	Neg.	87%	125-80	Active	Spasm	120-60	Post-coital Atropine	7 Mos.
A	Posterior	Alk.	Anterior left	Neg.	Neg.	80%	120-80	Active	Stricture	190s low to 160		7 Mos.
A	Mid. Pos.	Alk.	Anterior	Neg.	Neg.	80%	110-85	Active	Spasm	140-60	Doda Douche	7½ Mos.
A	Posterior	Ft. A.	Retroflexed	Neg.	Neg.	75%	100-70	Active	Patent	95-40	Knee Chest Pos. Pessary	3 Mos.
A	Posterior	Flaccid	Anterior	Neg.	Neg.		115-82	Active	Patent	100-60		3 Weeks
A	Anterior	Neutral	Anterior small	Neg.	Neg.	85%	115-78	Active	Patent	100-60	Soda Douche Dilatation cervix Thyroid ovary	15 Mos.
A	Posterior	Neutral	Retroflexed Tender	Neg.	Neg.			Active	Spasm Mucus	140-80	Replacement Uterus	2 Weeks
A	Posterior	Neutral	Anterior left	Neg.	Neg.	90%	100-80	Active	Patent	100-60	Thyroid ovary. Rest-Diet	3 Mos.
A	Posterior	Alk.	Anterior	Neg.	Neg.	78%	110-80	Active	Patent	125-160-80		2 Weeks

two patients who have conceived after such myomectomy.

The fallopian tube obstructed by mucus, fine adhesions or kinking, may be opened by pressure (not exceeding 200 m.m.) during transuterine insufflation.

In the patient with the underdeveloped or infantile uterus we may use endocrine therapy, ovarian and thyroid extract, but in all probability in these women there is an associated lack of development of the other organs of reproduction, especially the ovaries, which may account for the sterility.

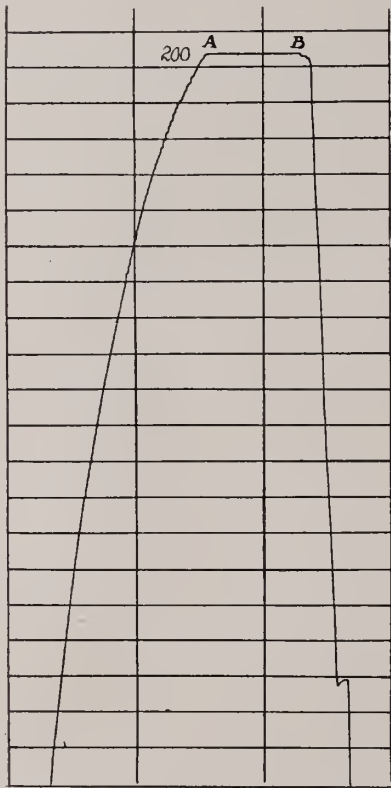


Fig. 3.—Type of chart obtained in complete obstruction. Mercury rises to 200 m.m., remains there. No manometric fluctuations.

Cystic disease of the ovaries and also fibrosis to a certain degree may be due to infection in the lower genital tract, especially in the cervix and therefore early treatment of these conditions may prevent ovarian sterility.

Summary of ten cases of pregnancy following transuterine insufflation and treatment during years 1924 to 1927. Ages of patients, twenty-one to thirty-five.

Menstruation normal in onset, frequency, duration and amount in all.

Duration of marriage, one to six years.

Previous Diseases: Measles ten; Mumps three; Scarlet fever two; Diphtheria two.

Measles, mumps, scarlet fever and diphtheria one. This patient conceived in three weeks after transuterine insufflation.

Contraceptives, douche and condom used by six.

Previous Operations: D. & C. and Pessary two; Appendectomy one.

Dysmenorrhea one. Normal sexual desire four. Vaginal reaction acid ten. Cervical reaction acid four. Cervix eroded three. Cervix chronically infected one. Uterus movable ten. Retroposition three. Antelexion one. Ovaries negative to physical examination ten. Urine free from albumin and casts ten. Hemoglobin 70 to 90 per cent. Blood pressure, systolic 100 to 125 m.m. Sperm active in cervical mucus ten.

Fallopian Tubes: Patent in six. Spasm in two. Stricture in one. Partial obstruction one.

Four patients conceived without treatment after complete sterility study, including transuterine insufflation.

Three conceived in thirty days.

One in seven months.

Six patients conceived after examination and treatment.

Two in three months.

Two in seven months.

One in fifteen months.

One in two weeks.

Initial rise in mercury during insufflation 95 to 190 m.m. Treatment consisted of alkaline douche, post-coital antispasmodics, reposition of uterus with exercise, dilatation of cervix, thyroid and ovarian extract.

In conclusion, in order for conception to take place, there are four requirements of the male and four of the female. The male:

First, normal production of spermatozoa.

Second, no obstruction in the passages.

Third, no lowering of sperm vitality during their travel through the male passages.

Fourth, normal delivery of the sperm.

The Female:

First, normal reception of the sperm.

Second, no chemical injury to the sperm.

Third, normal production of ova.

Fourth, no obstruction in the cervical canal, uterus or fallopian tubes.



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**DIAGNOSIS AND NORMAL DELIVERY.\***

By HENRY J. LANGSTON, M. D., Danville, Va.

The committee who planned this symposium on Obstetrics and who assigned the subject to Dr. J. D. Hagood for discussion gave him no instructions as to what it wanted covered. Therefore, after having been requested by Dr. Hagood to take his place and discuss this subject, I have taken the liberty of covering the subject in a way which seems to me to be adequate and satisfactory, and I shall outline this subject as follows:

- I. A diagnosis of pregnancy.
- II. A diagnosis of relationship of baby to mother and presentation.
- III. The management of normal delivery.

I. The diagnosis of pregnancy is not as easy as it first appears to be. There are many things which may confuse us in a diagnosis. Some of these are fibroid of the uterus, ovarian cyst, and a general hypertrophied uterus with menstrual disturbances. Sometimes when we have studied a case most carefully we are mistaken in the diagnosis. In making a diagnosis, each person will have to take into consideration the conditions which may confuse pregnancy. Many of us have seen cases of ovarian cyst, and find that at the same time we have a pregnant uterus. There are others of us who have seen an enlarged uterus which appeared to be pregnant and at the same time the trouble was ovarian cyst. We have likewise seen a fibroid uterus which made us feel that we had not only a fibroid but also a pregnant

uterus. This condition is right common. The evidences we have to consider in making a clear-cut diagnosis of pregnancy are morning sickness, general body changes which occur in the breasts, around the vulva, in the vagina and cervix, cessation of menstruation, general increase in body weight, the patient's general appearance being very different from what it was before she became pregnant, with digestive disturbances in addition to morning sickness, disturbances of the bladder, general discomfort in the pelvis, and sometimes backache. The disturbance of the bladder may be of such a nature as to annoy the patient a great deal or only slightly, such as frequent and painful urination, which persists both day and night. The patient's attitude and disposition may be markedly changed. With the general increase in body weight, the patient begins to notice an increase in the size of abdomen, and with the increase in the size of abdomen at about four and a half months after her last menstruation, she begins to feel movements. Then it is that a positive diagnosis can be made on the following basis: Outlining the baby, being able to ballotte it, hearing the fetal heart sounds, and the patient feels movements both day and night. These are some of the common evidences that we have which enable us to make a diagnosis of pregnancy.

The findings on physical examination in such cases are: The character of the skin is generally changed, all mucous surfaces seem to be a little thickened and have more of a velvety appearance, the skin presents a characteristic softening with a little increase in the thickening of it, breasts become larger, there is general pigmentation and a change of the areola, and the nipples show hypertrophy. Examination of the abdomen reveals a uniform mass which rises out of the pelvis. Vaginal examination reveals the vagina increased in size, the mucous surfaces being soft, the cervix is increased in size and very soft, and on bimanual examination we discover that the mass in the pelvis and abdomen is continuous with the cervix, is regular and smooth and more or less soft. If we find no other masses in the pelvis, then we can be sure that our physical examination gives us positive evidence that the patient is pregnant. I feel that we can make an earlier diagnosis of pregnancy than we have been taught to do in most cases by a careful his-

\*Read before the South Piedmont Medical Association.

tory of patient with above named findings. If patient says she has been regular in her menstruations up to a certain date, though she may not have had symptoms such as nausea and vomiting, morning sickness, changed attitude, and we further discover, by examination, the uterus is increased in size, the cervix is soft and there is a general change in the vagina with an increase in its size, we can be sure with such evidences that the patient is pregnant and treat her as such.

II. Diagnosis of relationship of baby to mother causes us to jump from the positive diagnosis of pregnancy now to the hour of labor. An accurate study of the patient should be made up to the hour of labor; note should be made of the patient's weight before pregnancy with reference to her weight at the hour of labor; record should be made of her blood pressure, the urine, the size of the pelvis, and the estimated size of baby. When these things have been done, the next thing we want to be sure of is the position of baby in the uterus at the onset of labor. The following points are significant:

The location of head must be noted,—whether it is in the superior strait, or in the fundus, or transversely, whether it is to the right or left, and whether the occiput is in the anterior or posterior position. If the head is in the superior strait, or is floating above the superior strait, then we want to be sure if we have R. O. A., or R. O. P., or L. O. A., or L. O. P. After we have determined this, we want to be sure of the part presenting, whether it is occiput, or brow, or face or chin. After these things have been determined, we are in a position to tell whether we have a so-called normal presentation for a delivery.

III. Assuming that the occiput is presenting, either the right anterior or left anterior, or right posterior or left posterior, the patient is then prepared for delivery by having the bowels thoroughly cleansed, that is to say, the whole lower bowel should be thoroughly emptied of all fecal matter, after which the patient is draped and examined vaginally to determine the exact condition of the cervix. I should like to say that I am sure that much of our teaching about vaginal examination is incorrect. We have been taught not to make vaginal examinations. I think the fact that we have been taught this has kept a good deal

of information from us which we should have had at our finger tips. When I say this, I do not mean promiscuous examinations but examinations which are made for the purpose of obtaining facts about the patient which will be helpful both to the patient and the attending physician in the delivery. Personally, I believe we can make as many examinations as we feel are necessary, and, if we make them properly and under strictly surgical conditions, there will be no infection following delivery. If we are careless and do not follow the proper technique, then we are foolish and are endangering the lives of our patients. By vaginal examinations we can determine the exact condition of the cervix. By studying these cervixes properly we can come within a few minutes of the hour of delivery. A normally delivered patient should be kept quiet and I prefer them to be in bed. I conduct my normal deliveries in the following manner:

1. I do everything possible to assure the patient that she is not in danger and that her baby is in good condition.

2. By the use of morphin I try to eliminate as far as possible the pains the patient experiences in the first stage of labor. After the lower uterine segment has been effaced and the internal os obliterated and the external os opened to the size of a silver dollar, at which time the cervix is very thin. I inject into the rectum two and a half ounces of ether with mineral oil and twenty grains quinine hydrobromide. I have the patient then to lie on her left side until this has been put well up into the sigmoid. This does not interfere with the uterine contractions. In fifteen or twenty minutes the patient is asleep, the uterine contractions prevail and usually in from two to three hours the cervix is completely dilated. After the cervix is completely dilated the patient can be removed to the delivery room; if the analgesia at that time is not sufficient, she can be allowed to inhale ether by the open method. The patient is now thoroughly scrubbed up with green soap and sterile water, after which 2 per cent or 3 per cent of mercurochrome is allowed to run into the vagina. The bladder is thoroughly emptied by use of a catheter. By the use of green soap on gloved hand, the vagina is now gently ironed out. With this process of ironing out, the levator ani muscles and the vaginal wall are thor-



oughly relaxed. When this relaxation is fairly complete, the head comes down on the perineum. As the head appears on the perineum, the skin of the scalp of the baby may be watched closely to keep a check on it; also, the stethoscope may be used to keep a check on the heart sounds. As the head comes down well on the perineum, gentle pressure may be put on the posterior wall of the vagina, thus shortening the duration of the second stage of labor, likewise protecting the perineum. As the brow comes down through the vagina, gentle pressure should be made on the perineum, also on the head of baby to keep the head from advancing too rapidly, thereby protecting the soft parts of mother. As the head slips through the vulva, if the position of baby is L. O. A., the chin should be rotated to the right so as to protect the posterior wall of the vagina. As the chin is delivered the head should be supported and not pulled upon and we should take plenty of time to deliver the shoulders, the trunk and the legs of baby. Many physicians, as the head is delivered, begin to pull on the baby, hooking a finger in the posterior axilla of the baby and pulling it out of the vagina, frequently doing injury to the baby and also irreparable damage to the birth canal. If necessary, one can take ten or fifteen minutes to deliver the baby from this point on, thus saving the soft parts of mother as well as injury to the baby. After baby has been delivered, if it appears not to breathe as it should, it should be left alone and not beaten, nor put into hot and cold water, but let it remain attached to the cord from five to ten minutes. In this way, the baby will get oxygen from the mother and, if the heart is beating in five or ten minutes, it will begin to breathe. If the baby appears too blue, 1/20 gr. alpha lobelin may be injected either into the cord or the buttocks of baby. If baby is uninjured, it will come around all right. Many babies are treated roughly when they do not breathe. This is unnecessary and doctors use up a lot of energy in treating babies in this manner when a very quiet simple easy method of treatment is much better.

After the normal delivery has been completed, an ampule of 15 mms. of obstetrical pituitrin should be given. The advantages of administration of pituitrin at this point are that it protects patient from hemorrhaging,

she loses only a minimum amount of blood, and the placenta is expelled more quickly. After the placenta has been expelled, the patient should be thoroughly cleaned, re-draped, legs flexed upon abdomen, cervix inspected, and the vagina thoroughly examined for tears. All tears should be repaired immediately. Strictly surgical technique should be followed all the way through. After the cervix has been repaired, which requires only about three minutes, careful inspection of the vagina will reveal some sort of laceration. Many physicians overlook lacerations over the wall of the vagina; when there is no laceration of the skin, they say they have no lacerations. Careful inspection of the vagina will reveal lacerations posteriorly either in the mid-line or at the right or left of the mid-line. If these lacerations are sutured when discovered, we have a very much better vagina than if they are left alone. DeLee, in his latest book, mentions the fact that all women are lacerated at the time of delivery. A study of my own work makes me believe that that is correct, and I am now routinely examining the cervix and the vagina, and all lacerations are repaired.

In conclusion, I believe we are not using all the knowledge we have in the diagnosis of pregnancy, or in the diagnosis of relationship of baby to mother at the onset of labor. A failure to make a correct diagnosis of the position of baby and presenting part at the onset of labor frequently is the cause of death of baby, and leads to difficulties during the delivery. A correct diagnosis and notation of any abnormalities enables the physician to inform his patient of these abnormalities and also to equip himself for the immediate difficulties in the delivery. It may mean that he will have to call a consultant and have extra help. If it does, do so, for in the long run the physician will not only do better work, but he will be able to keep the good-will and friendship of his patient.

I feel that to allow a mother to go through the so-called natural birth experience without such relief as we may give from suffering is the most inhuman and unkind thing we can do, when we have at our disposal certain drugs which will in great part eliminate these pains and at the same time will not interfere with the physiological and mechanical process of having a baby. By the use of these methods,

in addition to saving the mother much pain, we also get better relaxation in the vagina, besides being enabled to protect the soft parts. When the patient is through with the normal delivery, after she has re-acted, we will find her prepared for an uneventful period of lactation and puerperium.

Often in our normal delivery we assume we have no lacerations, when, by careful study and inspection, we will find lacerations which should be repaired. Cleanliness and practice of proper technique will eliminate infections and our patients after normal delivery will go through the puerperal period without trouble or discomfort of any consequence; also, our babies will be uninjured and will not thereby be handicapped for proper growth.

### HOW MAY WE IMPROVE OUR OBSTETRICAL MORTALITY?\*

By GREER BAUGHMAN, M. D., F. A. C. S., Richmond, Va.

There are two ways of handling trouble: One is to try to forget it and to so busy ourselves with other things that trouble is relegated to the background. That method has certain advantages, but, unfortunately, it will not make the trouble entirely disappear. The other way is to talk frankly about it with those who may be able to suggest a plan of cure, and, having worked out a plan, stick to it until trouble has disappeared or until we are compelled to say frankly that the trouble is insurmountable.

Our death rate from childbirth has been handled along the former line until recently. Unfortunately, mortality in childbirth did not decrease. It is high time that we give some real thought to it and that a good working plan for its cure be outlined and vigorously followed.

If we expect our women to have babies, we should be able to guarantee that less than ten in a thousand will die, as they did in 1918. To expect women to continue to become pregnant when they know that one will die in every hundred that deliver is asking too much. 1918 happened to be the year in which the highest death rate in Virginia was recorded within the last fifteen years. The rate has been below seven in a thousand only three times in fourteen years. In 1921 it was 6.9; in 1924, 6.2; in 1927, 6.3 in one thousand.

The number of deliveries in the state is declining. There were 3,374 more women delivered in 1925 than in 1926; of these, 2,262 were white and 1,112 colored. In 1927, there were a few more delivered than in 1926, but less by 3,237 than in 1925.

It would be unfair to attribute the falling off of the birth-rate to the fear of death alone. Undoubtedly, the fear of pain, the fear of morbidity, economic reasons, better jobs for women, better education, spread of birth control literature and many other reasons enter into it. We must face the fact, however, that the number of births is being reduced. Having babies is becoming unpopular, it appears.

Let us analyze the cause of death from the puerperal state in Virginia, to see if it will throw any light upon our problem. We find that puerperal eclampsia, as it is termed in the statistical tables, accounts for about one-third of the deaths, sepsis takes care of a third; and the other third is made of all other things that cause death in the puerperal state. In nine of the fifteen years studied, sepsis killed a greater number than eclampsia; while six other years showed that eclampsia had a greater mortality. From 1913 to 1917 inclusive, sepsis was in the ascendancy. In 1918, eclampsia killed eight more than sepsis. In 1919 and 1920, eclampsia was definitely in the lead. In 1921, sepsis led by two. In 1922, eclampsia was fifteen ahead. In 1923 and 1924, sepsis was two ahead. In 1925, eclampsia was twenty-four ahead and in 1926 eclampsia killed ten more than did sepsis. Suddenly in 1927, eclampsia deaths fell to 98—39 less than the deaths from sepsis. This was the lowest rate from eclampsia ever recorded in the State, being twenty-eight less than 1913, which had the lowest death rate from eclampsia up to 1927.

The total death rate for 1927 was 6.3 per thousand. This again was a record, the death rate from the puerperal state being the lowest ever recorded in the State of Virginia.

A brief study of the above statistics would seem to indicate that something rather definite must have happened to reduce the mortality in 1927.

I wish we were sufficiently astute to point out the definite thing that reduced the mortality, particularly in eclampsia. If that were possible, we would be in a fair way to push the declining eclampsia entirely out of the pic-

\*Read before the Richmond Academy of Medicine, October 23, 1928.



ture and by so doing reduce our mortality by at least one-third.

We have learned by the study of statistics, as well as our own statistics, that so far as immediate death is concerned, the patient suffering from pre-eclampsia who has had no convulsions will have the same mortality rate as her pregnant sister who has no pre-eclamptic symptoms. The minute they have one convulsion they go into a different class where one in five will die. We know that the only way to have a knowledge of the approach of pre-eclampsia is by prenatal care. If we recognize the impending danger of approaching convulsions, we can by simple treatment prevent them, or, in the event that the case does not improve, we can induce premature labor or abort them. Every doctor in the State knows this simple fact. The real problem is to get pregnant women to make contact with the doctors.

The State of Virginia, mindful of the importance of getting the knowledge of proper prenatal care to the laity has, through its health department conducted a correspondence course for the pregnant women of the State. It has also devoted a department to the instruction of midwives and has eliminated many of the most unworthy.

The activity of the health department of the State, as well as of the health departments of the cities through dispensaries, the medical schools through dispensaries and hospitals, the activities of the county nurses, all of these have undoubtedly helped to reduce the mortality in 1927.

A reduction of the virulence of eclampsia may have had an important bearing upon the situation.

There is one new agent that has entered into the fight for the reduction of puerperal deaths, that must be considered. Dr. J. S. Horsley, while President of the Medical Society of Virginia, appointed a committee for the study of the midwife situation. This committee got to work early in 1927 and immediately enlarged its field of action to include maternal welfare work. They heartened the State health department and outlined a plan for getting the pregnant women in contact with the doctors of their choice.

Dispensaries, clinics and hospitals help a great deal in teaching prenatal care and in reducing mortality.

In 1920 I made a study of the statistics from the outside delivery service of the Medical College of Virginia, and found 2,341 cases with a mortality of 5.1 per thousand. We had 2.9 per thousand of eclamptic deaths but only .85 per thousand of sepsis deaths.

In a recent study of what the dispensary and hospitals of the Medical College were doing for the pregnant women of the city in 1927, I found that the dispensary had 157 white visits and 939 colored visits, 1,096 visits in all. The Memorial Hospital cared for 200 white cases on the wards. The greater number of these were abortions. During the same time, we cared for 210 colored cases in the ward of St. Philip's Hospital. This make a total of 410 charity cases in the two hospitals, while on the outside we handled twenty-two white and 286 colored cases with a total of 308 and a grand total of 718.

During 1927, the city of Richmond reported 3,809 deliveries. Of these 2,466 were white and 1,343 were colored. Our clinic contacted with one white woman in every twenty-four and one in every 2.6 colored delivered in Richmond.

The greater number of the women delivered by the clinic received prenatal care.

Certainly one of the answers to the high death rate from eclampsia is prenatal care. Prenatal care will reduce the incidence of convulsions so greatly that deaths from that cause will be as uncommon as deaths from typhoid.

The problem of reducing sepsis is more complicated.

We believe that we have succeeded in reducing the deaths from sepsis in our own clinic much below that of the State at large because we have given these women a careful physical examination, a careful pelvimetry, have watched the growth of their babies and have planned a long time ahead what method of delivery is most advisable, and have carried out our plans without unnecessary vaginal examinations. We have striven for sterile deliveries. In this we have fallen far short of the ideal, but we are constantly striving.

If we can induce the doctors of the city and of the State to regard prenatal care as of sufficient importance in the prevention of puerperal deaths, the mortality will be reduced much lower than in 1927. In addition, if we can succeed in having every woman in Virginia

see a doctor at least once during her pregnancy, puerperal deaths will be accidents.

26 North Laurel Street.

## THE USE OF THE CLINICAL LABORATORY BY THE GENERAL PRACTITIONER.\*

By ALEX. F. ROBERTSON, JR., M. D., Staunton, Va.

Since Pasteur's discoveries of fermentation and of the bacterial causes of diseases we have advanced a long way in a relatively few years. So-called clinical pathology has increased in scope with each new discovery, embracing in turn biology, chemistry, immunology and other branches, until it has become a complex study and has resolved itself into one of the specialties of medicine. The general practitioner has promptly adopted this new aid in diagnosis, and not having the time or the training to do the work himself, has it done by laboratories conducted by the state, hospitals, or by private individuals. This has resulted in great help to the physicians and in much benefit to the patients. However, there have been certain disadvantages arising from the use of the laboratory, some through thoughtlessness and others through an incorrect evaluation of the reports. These we shall attempt to discuss and afterward suggest the more useful applications of the laboratory. While I realize that most of what I have to say is so elementary and well known as to seem trite, I have taken this subject because I feel that it is one of practical every day interest to each one of us.

Possibly the greatest disadvantage of the laboratory lies in attaching an undue importance to the reports, "letting the tail wag the dog." If we will only bear in mind that these tests constitute only one link in our diagnostic chain, we shall avoid this error. Again we must be wary of negative reports, for after all it is only the positive reports that are of much value. We may have diphtheria with a negative throat culture, or typhoid with a negative blood test, just as we have tuberculosis with a negative sputum. In a case in which we have taken a careful history and made a thorough physical examination and then gotten a laboratory report at variance with our clinical findings, we should try to make the two coincide by carefully going over our case again and having confirmatory tests made. If we still

disagree, in the majority of the cases I should prefer the careful history and examination to the laboratory reports.

One very great disadvantage of laboratory methods is that one insensibly becomes lazy. It is so easy to order various tests and study our cases afterwards instead of beforehand. It seems to me that we of this generation, while we know more of medicine from the etiologic and mechanistic standpoints, are far behind our predecessors in the use of our God-given five senses. We use our eyes, but how little we see as compared to the men of the last century! The remedy of this is to study our cases carefully first, and then use the laboratory tests as a check or to confirm our judgment.

We hear much of blood chemistry and to many of us it has little meaning. It has been of great scientific interest and has thrown light in some dark places, but its use is not indicated in the general run of patients. Blood chemistry to some of us means the more commonly used estimations of blood sugar and blood urea. The estimation of the sugar is of importance in diabetes, the urea in nephritis, but it very seldom happens that we need both tests on the same patient, and yet many doctors always order them both. For all practical purposes there is nothing to learn from a blood urea determination which may not be learned from the simpler urinalysis and kidney function tests.

There is no reason why we shouldn't do the simpler tests ourselves. I was much impressed two years ago at the American Medical Association convention by hearing Dr. Henry Christian say that he made his own urinalyses and that every doctor should do so. And it is also true of a great many of the simpler and more useful tests. I feel very strongly that every doctor should have a microscope and use it.

It might well be asked what tests are essential and what not, but for the vast majority of cases the simpler tests will suffice. Dr. Cushing has said that 90 per cent of cases can be handled by the general practitioner and the other 10 per cent should be referred to hospital or clinic for study.

The routine urinalysis is the most universally used test and all of us do the chemical part. With a microscope we can readily check up

\*Read before the Augusta County Medical Association, May 1, 1929.



on blood, pus, and casts. Let me emphasize here the importance of pyelitis in infants as a cause of unexplained temperature easily explained by a microscopic examination. A simple test not often enough employed is the test for fixation of specific gravity. On a water-free diet the specific gravity of the urine should approach 1.030 by the end of the day. In chronic nephritis it remains low or fixed. The simple estimation of the amount of day and night urine is helpful. As mentioned before, the kidney function, or phenolsulphonaphthalein test, is most reliable and shows an impaired kidney earlier than the blood urea estimation does. In the case of edema, the drug should be given intravenously.

The recognition of Vincent's angina is very simple if one has a microscope. By using a platinum loop, one may recover organisms very early—before ulceration—from under the gum margins.

Throat cultures had best be sent to a laboratory but, if the clinical diagnosis is diphtheria, antitoxin should be given at once. Often valuable time is lost in waiting for the laboratory report. Release cultures should be taken after the acute stage is over.

Wassermanns should be done routinely on all chronic cases. Blood cultures and agglutination tests for fevers of over a week's duration should be sent to laboratories. In the case of typhoid it is important to remember that the blood culture is more reliable in the first week when the Widal is usually negative, while at the end of the third week the Widal is positive in about 75 per cent of cases and the culture is usually negative. Any doctor who has a microscope can make his own examinations of smears for gonorrhea.

Blood counts are useful in many conditions, the white and differential being especially useful for acute conditions, and this examination is very easily done with a little practice. We often feel that we can watch an appendix when the leucocytes are low while with a rising count and other acute symptoms we do not dare to wait. A count as high as 20,000 usually means that a gangrenous appendix is not far off. Leucocytosis with fever and a pericardial friction rub may be the determining point in a diagnosis of coronary thrombosis. And there are numerous other examples of the advantages of the blood count that time does not permit

us to discuss. The anemias, of course, need a complete blood count.

Examination of sputum for tubercle bacilli, of the gastric test meal, and of the stool for occult blood, parasites, and ova, are important tests which may easily be done in the doctor's office, although these are more time consuming and many will prefer to have them done in laboratories.

Blood sugar estimations are necessary in the treatment of diabetes and for the separation of true diabetics from cases of renal glycosuria. Blood urea is of use in certain cases of nephritis. Cases for these tests should be sent to the laboratory without any breakfast.

There are, of course, other examinations, such as the agglutination tests for Tularemia and Malta fever, carbon dioxide combining power of the blood, etc., which we may rarely need, but the ones outlined above will cover most of our cases.

Lest I be misunderstood, I should like to say that what I have said is not meant to reflect on the very great value of laboratory tests, nor do I blame the laboratory for the pitfalls in its wake. I feel that we, the general practitioners, are to blame because, sometimes we lose sight of the human element in laboratory work, and with the human element there is always the possibility of human error in either technique or interpretation of results. If we remember these things, and that the laboratory is, after all, only one of many steps in arriving at a diagnosis, there will result a coordination of our efforts, a wider use and a greater usefulness of laboratory methods.

*Professional Building.*

## **TREATMENT OF BRONCHIAL ASTHMA.\***

By TURNER S. SHELTON, M. D., Richmond, Va.

In a condition with as many phases as asthma, it is necessary that the patient be given a thorough study and all underlying causes removed as far as possible whether it be an offending protein or a focus of infection. The treatment of bronchial asthma consists of the following kinds: specific protein, non-specific protein, vaccine, drugs, roentgen-ray, ultra-violet ray, bronchoscopy, operative procedures, psychotherapy, climatic and supportive.

**SPECIFIC PROTEIN.**—The most satisfactory results are obtained in those cases in which you can find a definite sensitiveness to a specific

\*Read before the Manchester Medical Society, April 2, 1929.

protein, either by removing the offending protein or by desensitization. All foci of infection should be removed. Probably the most common foci are the sinuses, which should at all times be cleared up. The teeth and tonsils should also be looked after. Walker reports one hundred cases of pollen fever probably cured, with relief of symptoms for at least two years. These patients were treated at weekly intervals for a period of from 13 to 16 weeks prior to the usual onset of symptoms. Many observers insist on pre-seasonal immunization as the method of choice. Vaughan, Conway and others report excellent results in seasonal treatment, after the attack has developed. This method is of value especially as many patients do not report to the physician until symptoms develop. Beckman reports 213 cases of asthma that have been clinically free from symptoms for over two years, observed in a group of 1,074 asthma patients. Of these cured cases, 107 were of the extrinsic type, i. e., the exciting cause was extrinsic, usually some protein; 91 were of the intrinsic type in which the exciting cause was intrinsic, chiefly bacterial and reflex asthma; 9 were unclassified. The most common method of cure was by the elimination from the diet or environment of the particular external substance to which the patient was sensitive. According to Black, good results can be obtained by administration of pollen by mouth. The oral administration of the pollen extract was practically co-seasonal, as it was found that the protecting dose could be reached more quickly by this method and pre-seasonal treatment was not necessary. However, relief was definitely less in the series of cases treated by the oral method than in the series of cases treated by the hypodermic method. In a small percentage of his patients, the pollen by mouth caused nausea and abdominal pain. Cohen reports 400 cases in which he used the following routine. The patient was kept for two weeks in a dust-free room supplied with filtered air removed from contact with all inhalant sensitizing substances. During the stay in the room, routine and special skin tests were made and the effect of heat, cold and other physical factors studied. If the patient's symptoms disappeared in the dust-free room, the symptoms were correlated with some inhalant factor in his environment. The home environment was re-arranged ac-

cording to the information obtained by this study. The diet was arranged according to information obtained by the history and tests. If the patient failed to get relief by these methods, attempts at specific desensitization with the bacteria to which he was sensitive were tried.

**NON-SPECIFIC PROTEIN.**—Non-specific protein treatment seems to give but little relief. However, Vallery-Radot and Giroud claim better results with non-specific desensitization with peptone than with the methods of pollen desensitization generally used in America.

**VACCINE.**—In practically all cases of long standing with secondary infection, vaccine therapy with autogenous or stock vaccine is indicated. Sutherland claims that stock vaccine is as effective if not more so than autogenous vaccines.

**DRUGS.**—Many drugs have been recommended in the treatment of asthma. Potassium iodide probably is the most commonly used. It is of considerable value in that it thins the bronchial secretions, enabling the otherwise thick tenacious sputum to be much more easily discharged. Adrenalin chloride gives striking relief during an attack but, if given in large doses over long periods of time, it is likely to cause a poor physical condition with tremor and weakness. Though ephedrine may not give as quick relief as adrenalin, its effect is more lasting. One advantage it has over adrenalin is that it may be administered by mouth. If the patient cannot use hypodermic medication himself and has nothing to take orally, he has a tendency to rely upon patent medicine. About 10 per cent of patients taking it over long periods of time develop tremors, palpitation and insomnia. Beckman reports treatment of 17 cases of late summer fever with nitrohydrochloric acid given by mouth. In all cases, practically complete freedom from symptoms was obtained by starting treatment with the acid at once on the appearance of the first premonitory symptoms and continuing its use throughout the season. In patients showing a blood calcium below normal, calcium chloride, given in 15 grain doses 3 times a day, at times gives marked relief. Chopra reports a series of 61 cases treated with *sanssurea lappa* (kuth root). The drug was found to be excellent for controlling asthmatic attacks. It has a depressing effect on vagal



tone, relaxing the involuntary muscle fibre of the bronchioles. It also relieves the congestion of the bronchial mucosa by its marked expectorant action. Though he used the *Saussurea lappa* alone when the drug is being administered to cut short a paroxysm, he prefers to prescribe the following mixture when administration is to be continued for some time to prevent further recurrence of the attacks.

Potassium Iodide .....	Gr. v to x
Tincture of Belladonna.....	M iiij to v
Borax .....	Gr. ij
Extract S. Lappa Liq.....	Drs. $\frac{1}{2}$ to 2
Sp. Chloroform .....	M x
Aqua. ....	Oz. 1

The drug has no cumulative action so that it can be continued for long periods without harm, and it does not cause tolerance so that the dose has to be increased. The above mixture can be given 3 or 4 times a day and gives prompt relief.

**ROENTGEN-RAY.**—Numerous contributions have been made to the foreign literature of Roentgen-ray therapy. Vallery-Radot and others report 64 cases of asthma and spasmodic coryza treated by Roentgen-ray. Thirty-one of these cases had asthma alone, 8 spasmodic coryza alone, and 25 both conditions. Some patients in addition had attacks of spasmodic cough, migraine and urticaria. Most of these patients had been suffering over a period of several years and had tried various methods of treatment without relief. In some cases the hilus of the lung was irradiated, in others the spleen, in others both areas. Of 64 cases 19, or 30 per cent had complete relief from symptoms, 16, or 25 per cent, were very definitely improved, in 29 cases, or 45 per cent, the treatment failed. Of 12 cases in which the hilus region alone was irradiated, there were 2 relieved of symptoms, 6 improved, and 4 failures. Of 26 cases treated by irradiation of the spleen, 8 were completely relieved, 7 improved, 11 failures. Of 26 cases in which both areas were treated there were 9 completely relieved, 3 improved and 14 failures. Waldbott treated 81 cases of asthma and associated allergic conditions with small doses of Roentgen-ray over the spleen. Of the total series, 21 became symptom-free, 25 were temporarily relieved and 25 did not respond to treatment. There were a larger percentage of failures among adults than among children. The best results were ob-

tained in children less than 4 years of age and in cases with a beginning allergic condition manifested by allergic bronchitis. Better results were obtained in cases of allergic asthma sensitive to bacteria than among those sensitive to food pollen and emanation. Of a total of 169 exposures, 39 were followed by reaction. Better results were obtained in patients showing these reactions. Gilbert reports 64 cases of asthma and spasmodic coryza treated by Roentgen-ray applied over the hilus of the spleen. In a number of these cases both the thorax and spleen were irradiated. Of the 64 cases, 19 were entirely relieved of symptoms, 16 were greatly improved. In the remainder, some improvement was noted.

**ULTRA-VIOLET RAY.**—Wilmer reports the treatment of various types of asthma by irradiation with the infra-red and ultra-violet rays. The distance of the lamp from the body is gradually diminished and the time of exposure gradually increased. From the results obtained he concludes that infra-red and ultra-violet rays should be used in all cases of asthma due to bacterial sensitivity as an adjunct to bacterial therapy; in all children with asthma, of whatever type, who are definitely anemic or show evidence of rickets; in all patients whose living conditions are poor, with no opportunity for sunlight; in adults with a dry cough and extremely tenacious fibrous sputum. Of 20 children 2 to 10 years of age treated by rays, 14 were relieved and 3 improved. Of 12 older children and young adults 10 to 21 years of age, 6 were relieved and 2 improved. Of 50 adults 30 were relieved and 7 improved. In the cases designated as relieved, patients had been free from asthma for over six months. Most of these patients had been treated by other methods without relief.

**BRONCHOSCOPY.**—In a bronchoscopic examination of 21 cases of asthma by Lukens, four groups could be distinguished on the basis of findings: (a) those with chronic suppurative tracheobronchitis; (b) those with chronic catarrhal tracheobronchitis; (c) those with cyanotic mucosa without suppuration; (d) those with urticarial patches. Most of the patients belonged to group a. In addition to the general medical treatment, these patients were treated by bronchoscopic removal of the pus and abnormal secretions from the trachea and

bronchi. In group d cases, 10 per cent argyrol was used to touch up the urticarial patches and in group b cases, to swab over the intensely inflamed areas. All but seven of these cases were definitely improved and some appeared to have been cured. Group a patients experienced great relief within an hour after treatment and could prevent attacks by applying for treatment in time. Lukens believes that bronchoscopic drainage and treatment are a valuable aid in cases of asthma in which there is a definite pathology of the trachea and bronchi.

**OPERATIVE.**—Leriche and Fontaine report two cases of bronchial asthma treated by resection of the stellate ganglion on the left side. They conclude that while this operation has given excellent and permanent results in some cases, it is without effect in others. In one of their cases, section of the pneumogastric entirely relieved asthmatic attacks.

**PSYCHOTHERAPY.**—Fock reports five illustrative cases of asthma in which the onset of symptoms could be referred to some nervous or mental strain or some psychic trauma, in which complete cure was obtained by psychotherapy alone. Treatment consisted in obtaining periods of complete rest and relaxation under the influence of suggestion or preferably under hypnosis. This method, the author states, is not successful in all cases, even those of apparent psychic origin, but some cases respond to psychotherapy in which all other methods have failed. Moos reports sixteen severe cases and a number of milder cases treated by psychotherapy. At the end of the treatment there was no evidence of bronchitis and emphysema had entirely or almost entirely disappeared, except in two cases, and patients could be exposed to the various substances that had previously caused attack without recurrence.

**CLIMATIC.**—Change of climate may relieve certain sensitive types of patients by moving to a locality where the particular pollens to which they are sensitive are not prevalent. In the same way a patient may move from close proximity to a stable to a place more distant.

**SUPPORTIVE.**—Those cases which do not promptly respond to specific treatment or in which no disturbing element can be found require supportive treatment such as: rest,

proper diet, restricted exercise, fresh air and hygienic measures.

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3018 Semmes Avenue.

#### RABIES—A CASE REPORT.\*

By I. KAY REDD, M. D., Atlee, Va.

V. L. B., age six years, was brought to my office at 1:30 P. M., March 6, 1929, with a history of having been bitten about ten minutes before, by a dog belonging to the family.

On examination, there was a laceration of the upper lip two inches in length, beginning just above the lip margin at the center and extending well beyond the corner of the mouth. One-quarter inch above this was a second laceration, parallel to the first, but only about half as long, one inch. These two connected below the left nostril by a third perpendicular laceration, all three being completely through the lip, making a flap which could be pulled out. Apparently the child

\*Read before a Staff Meeting of the McGuire Clinic, Richmond, Va., April 16, 1929.



screamed when attacked and the dog caught her in the open mouth. This wound was bleeding freely. There were two lacerations across the bridge of the nose, one inch in length and about half an inch apart, a short tear in the lower eyelid near the inner canthus, four puncture wounds in the right cheek and one puncture in the entrance of the right nostril.

The wounds were cleaned with green soap and water, then with 1-1000 bichloride solution; all ragged tissues were cut away, and the parts were again bathed in bichloride solution. The lip wounds were closed with deep sutures of chromic catgut inside the mouth. The skin was sutured with fine dermal. The child was given 1,500 units of antitetanic serum.

On inquiry concerning the dog, Mr. B., the child's father, said it belonged to his father, who lives on an adjoining farm. It was not a very amiable animal and he said the child had probably disturbed it while it was eating. No change in its attitude or habits had been observed by any member of the family. The little girl was certain that the dog was not eating but that it was lying down by the house. Mr. B. was advised to kill the dog and submit the head to the State Board of Health for examination, which he did that afternoon. The Laboratory reported Negri bodies in the brain and Pasteur treatment was started, the first dose being given just five hours after the accident occurred. Hot dressings of boric acid solution were applied to the face for five days and then discontinued, there being no evidence of pyogenic infection. The mouth was kept clean with boric acid solution. Stitches were removed on the eighth day with very little scar, considering the extent of the injury.

Pasteur treatment was kept up regularly through the twenty-one doses. There were no local reactions. The child was bright and cheerful, her appetite good, and during the time developed quite an affection for me. She did not anticipate the hypodermics with any pleasure, but submitted without much protest. She regretted the last treatment because I would not come to see her any more.

On March 29th, two days after the last treatment and twenty-three days after the injury, I saw her and her attitude was entirely changed. Her mother stated that early in the afternoon she became nauseated and vomited, complained of headache and pain in the back of her neck. She was slightly constipated. When I entered the room she began crying

and appeared to be frightened. She crawled over to the side of the bed next to the wall and pushed her face downward between the mattress and wall as far as she could. It was only after much persuasion and threats from her parents that she agreed to even be touched, and then she was terribly frightened. Her temperature by mouth was 100.4° F. There was an area of induration and tenderness in the scar on her lip. She cried out with pain at times but was unable to locate it.

She slept very little that night, being fretful and irritable. She vomited several times, and retained some nourishment. Pain in the head and neck continued. The next morning her condition was unchanged and she was brought to St. Luke's Hospital, arriving about noon. She said she was hungry and asked for some sliced meat but ate very little. Her axillary temperature at 8 P. M. was 101° F. Her condition remained unchanged, and the second night was about the same as first night. Her appearance at 9 o'clock next morning was described by a consultant as "that of a little girl convalescing from an illness, and about ready to leave the hospital." Axillary temperature at 8 A. M. was 102.4° F. She complained of dysphagia shortly afterward and by noon she was unable to swallow liquids. At 1 P. M. her appearance was that of an extremely ill child; there were periods of delirium and hallucinations, and she was very excited and anxious to get up and go. There was also a left diplopia, a convergent strabismus and an endophthalmus. Axillary temperature at this time was 102.4° F. These symptoms continued with increasing excitement. At 4 P. M., her axillary temperature was 105.4° F., pulse 134 and respiration 40. She died at 4:30 P. M. in a respiratory spasm—just fifty hours after the first symptom developed.

It is of interest to note that B.'s dog fought a neighbor's dog several nights before he bit the child. This second dog developed rabies in fifteen days. The owner became contaminated with its saliva and is taking treatment. Twenty-two days after the dog was killed, a cow owned by Mr. B. developed jaw drop and was unable to swallow. Four members of the family and two neighbors explored her mouth and throat with their bare hands for an obstruction. The next day she developed typical rabies of the furious type and was killed. These six men are taking vaccine. From the rapidity in which symptoms developed in the

little girl and these animals, the infection must be highly virulent.

Although we know that rabies cases are 100 per cent fatal, in severe injuries or puncture wounds about the face and neck, especially in children, the prognosis is very grave, because the disease reaches the brain before immunity is established.

We ask ourselves what changes in treatment might have saved this child. Time was not a factor, as treatment was started very early. Cauterization of the wound is advised. An excision of the lip wound and cauterization of the lacerations over the nose and the puncture wounds of the cheek and nostril would have left a dreadfully disfigured face and still the eyelid to deal with. Although puncture wounds are considered the most dangerous, the disease in this case evidently developed from the lip, if induration and tenderness in the scar mean anything. Some authorities advise giving two doses of the virus a day for the first few days in severe injuries. Because of this child's age, six years, we felt that the full adult dose once daily furnished the immunity as rapidly as she could absorb it. Intravenous injections were considered and rejected because of her youth, plumpness and the daily repetition.

### A RURAL INTERNSHIP.\*

By DAVID B. STUART, M. D., Dublin, Va.

For the past five years it has been my allotment, at the hands of fate, to dwell in a rural district that, in my judgment, has no superior to be found throughout the breadth of the land. Packed into its vales and crowded on its hills are peopled some of the finest specimens of humanity that it has ever been my good fortune to learn, to like and to love. Many of the friendships that I have made are with people of a much higher intellectual status than is found in an average rural community of similar scope. I say this because, if some of the remarks that follow seem to border on the extreme, it is to remind you that they would only be exaggerated for a community less fortunately endowed.

If my observations seem caustic, my opinions egotistical, or my reasoning faulty, then please attribute the failing to one of two causes—first, that I am anxious to be earnest and true, and, second, that they are a result

of a most intimate personal experience. One cannot be associated with the same daily routine of life for five years without forming definite ideas, likes and dislikes to his mode of existence, that would be so fixed that it would be extremely difficult for anyone less familiar with the same to dissuade him from any of his opinions.

It is my object in these few words to address three classes of physicians, and then only in general terms, because, if I really opened my heart to you on this subject, the product would be volumes and not a mere pamphlet. The first class is composed of that large number of men who are likewise located in general rural practice. To this group I have nothing to say except that I believe they can endorse the principle, at least, of all I have to say.

The second class is that smaller group of young men who have just finished one or more years in modern hospitals, and who are looking over the general situation, trying to decide just where to cast their anchor for life. To this group I have to say the following: If you are well pleased with your mental equipment and it would wreck your self-conceit to take a fall, then stay out of rural practice. If you cannot make a diagnosis without the various laboratory and mechanical means, if you cannot recommend treatment without the assistance of up-to-the-minute equipment, or if you cannot reach a decision without the aid of a superior, then stay away from the country. If, on the other hand, you desire experience that will render your judgment more mature, instill deep into the very fibre of your existence the art of self-reliance, inculcate into your being the severe task of rigid self-appraisal, and to be able to sum these up into a broadened scope of sociological and psychological attributes in your relationship with your fellowman, then, my friend, my advice to you is to come to the country. It will receive you with open arms and, at the end of your term, the length of which you can determine yourself, it will discharge you back into a wider world, also of your own choice. But I daresay it will leave the mark on you that is always found on a man who has had an experience that has given him cause for minutes of happiness, hours of sadness and days of self-inspecting thought.

The last group is made up of that larger number who can best be termed as urban physicians, a large proportion of which practice

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a specialty. Consequently, this group see a multitude of patients who are referred to them by the less fortunate rural physician for various ailments and sometimes for sheer diagnosis. To these men I have little to say in words, but a great deal in meaning. I admonish you to be tolerant. Remember always that the patient you see is one that has, from one reason or another, caused the referring physician a good deal of concern. If he is referred for diagnosis, do not dismiss him lightly for it may have taken months to persuade that patient to consult you. If he is referred for corroboration of diagnosis, and you cannot agree, be merciful and remember that the referring physician established a diagnosis solely by sheer brain power, and without the marked advantages at your disposal. I have lots of patients to come back to my office and tell me that they would never advise a friend to go to the man I advised them to consult, because they felt as if the effort was wasted, thinking that only scant attention was paid them. They are of an intelligent type, endowed with that rare faculty so prevalent in residents of rural districts that enables them to "size a man up" and to do it oftentimes with uncanny accuracy. Keep ever in mind that the patient referred to you is one that has puzzled the man that sent the case in, because if he considered himself thoroughly competent to handle it, you would never see it. And if you receive a case on which the country doctor has, in your opinion, made an apparent "bust," such as bringing in a ruptured appendix, think twice before you condemn him, *unless he makes it a habit*. It may have been a call far off of a good road, a family financially unable to receive hospital attention and delayed on that account, it may have been an old condition before a physician was called in, or it may have been one of those indefinite, tricky conditions that the rural practitioner appears to encounter so often. And, lastly, do not fail to recognize that in a small community everybody knows everybody else, they fraternize, work shoulder to shoulder, and when in trouble they offer sympathy, services and kind wishes to each other instantly. Therefore, they are intensely interested in the welfare of one of their number who has been less fortunate and lies ill in a near or distant hospital. It is a source of frequent embarrassment to have friends and relatives to inquire of the local physician as to their progress, and it may have

been days or weeks since he has heard directly from the man that the patient was referred to. It will take only a few more minutes of your time to send to the country man a record of all examinations or operations, and then to keep him posted every day or so as to the progress they are making. It serves the two-fold purpose of keeping him informed at all times, and, second, enables him to keep a system of records that, queer as it may seem, quite a few of the "hick" doctors like to keep.

To deviate along a little different line of thought, it is interesting to me to consider the following experience: I received my internship in a small private institution that, to my mind, except for the scale, compared very favorably with the larger hospitals, and gave more intimate contact with the physicians in charge. In this I became very closely drawn to several young men who, when they finished, each chose a separate path of procedure. Some went to larger hospitals, some to specialties and I came directly to general rural practice. It has been a pleasure a few times in the past five years to have had an occasional hour of intimate exchange of experiences, and it has been my delight to find that my experience has been the broader. It is true theirs has been much more intense, and they are better equipped to handle specific cases, but in every instance they have as yet to establish self-confidence, and they have learned absolutely nothing about the psychology of human nature from actual contact.

As to the multitudinous problems that a man doing rural practice obviously encounters, I am saying nothing, because you either know of them, or you are not capable of imagining them, for one has to enact an experience before he is capable of reproducing a mental picture of a similar circumstance. In order to sum up the attitude of the man who is facing the problem of rural practice, suffice it to say that he is constantly endeavoring to find a little different way to accomplish an end. In other words, he is seldom able to avail himself of methods of diagnosis or therapeutics that he was trained to use. It is an everyday occurrence that he has to substitute, to improvise, to makeshift, and, in short, to do the very best that he can under the circumstances. If he succeeds, he knows it and it cheers him, spurs him on to other efforts; if he fails, no one need tell him for, with that rare insight inculcated into his soul, he is thoroughly able

to account for his own shortcomings. He soon loses all egotism, all evidences of false pretenses, and becomes more imbued each day to endeavor to render the very best he has in him, if he means to be true to himself and to his fellowman.

I do not believe you can show me a physician who has practiced medicine in a rural district for five years or longer who will tell me, of the vast knowledge that he now possesses, that he gained the major portion of it in any school or hospital. No doubt he considered himself a very fair doctor when he essayed forth into the realms of country practice, but I will wager that only a few months caused a very thorough revision of the estimate, if he was fair to himself. Not so the man who locates in a city, because, if he strikes a snag, he has an abundance of efficient, experienced men whom he can rely on early in the progress of a case. He is able to limit his work narrowly even if he undertakes general practice. But the man out in the country, who has to depend on his own efforts, has to settle his problems alone and oftentimes battle the Grim Reaper unprepared, unassisted and underpaid.

I hope I have been fair in the statements made in this paper. I have tried to state the case without malice, for, while I have slaved, I have really enjoyed the last five years, and am grateful for the experience gained. I would not care to go through again all of the harassing moments that have passed, but I would not exchange a similar term in the best hospital in America for the intrinsic value of the knowledge gained in that great institution, Rural Practice! It is closely allied with that great College of Opportunity and that still larger University of Hard-Knocks. I hope to graduate some day, and to assay forth into a wider world, but I shall never forget, and will always respect the wide open spaces found in any rural community where a man is "his own jury, his own judge, and, if need be, by Divine right, his own executioner."

### **SURGERY OF THE GALL-BLADDER.\***

By HERBERT C. JONES, M. D., Petersburg, Va.

Successful surgery of the gall-bladder depends upon several factors: correct diagnosis, proper decision as to the time to operate, a wise selection of the type of operation, and an average amount of skill and technique. Of the

foregoing factors, the first is by far the most important, and we might go even further and say that the end results of surgery of the gall-bladder, as in other types of surgery, will be in a definite proportion to the correctness of the diagnosis. Exploratory operations are decreasing in numbers, and, as a result, operations are less shocking, performed in a shorter time, and there are fewer failures. Lives will be saved, unnecessary operations will be abandoned, and surgeons will be saved the embarrassment which always occurs when a patient comes back and states his old pain has returned. One cannot over-emphasize the fact that every operation on the gall-bladder or its ducts should be well founded, and one should utilize every resource at his command to arrive at the safe and proper plan of action.

The commonest pathology of the gall-bladder and its ducts is bacterial in origin. Probably 99 per cent of its disease starts in this manner. We cannot discuss in this paper as to whether this infection is by way of the blood stream, lymphatic channels, or ascends from the duodenum through the common duct. Once the infection invades the bile ducts and gall-bladder, one must decide as to whether this infection will take care of itself or can be made to take care of itself without leaving permanent damage. The hepatic and common ducts are necessary to life in that they form a passageway for bile from the liver to the duodenum. The gall-bladder, however, is not necessary to life, and when diseased not only offers a constant focus of infection but also is a favorable seat for the development of cancer. A diseased gall-bladder undermines health by disturbing digestion and is often the cause of inflammations of the liver and pancreas. Generally speaking, then, a diseased gall-bladder should be removed unless there are very definite contra-indications. One might draw as an analogy the modern conception of the tonsil. Tonsils are removed when they appear diseased, or when they are thought to be the focus for some disease elsewhere in the body, and, further, when there is a definite history of repeated attacks of tonsillitis. Tonsils are not removed in the face of acute infection. Abscesses of the tonsils are incised and drained and the tonsil removed later. Likewise, gall-bladders are removed when they are diseased and are not functioning properly. Thanks to Dr. Graham in his development of

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the gall-bladder function test, one can now tell with 90 per cent certainty as to whether the gall-bladder is diseased. Tonsils are not removed during attacks of acute tonsillitis. Similarly, in acute cholecystitis one does not operate unless he is forced to. Under morphine, rest and an ice-bag, the condition will subside and removal can be accomplished with less risk because of the diminished danger of infection, the diminished likelihood of troublesome hemorrhage, and the lessened danger of injury to important structures. As in abscess of the tonsil, where drainage is the treatment, so, likewise, in abscess or empyema of the gall-bladder, one is forced to drain. The gall-bladder is not removed because of the increased danger to the patient. Border-line cases here often tax the ingenuity of the best surgeons and the matter of removal can only be decided on the basis of judgment.

Surgery of the hepatic and common ducts is somewhat different. These ducts are necessary to life and surgery here is more of a plastic nature. Every operation on them has for its purpose the establishment of a drainage tract for bile, whether the obstruction be due to pus, stone, or pressure from without, such as an enlarged lymph gland or malignancy. A surgeon often faces the problem of deciding whether or not to open the common duct. Generally speaking, if there has been no history of jaundice and if no stone can be palpated in the common duct, this duct should not be opened even if at exploration it is found to be dilated. If, however, there has been a definite history of jaundice and the common duct is found to be markedly dilated, even though a stone cannot be felt, the duct should be opened and explored. It is probably better not to open the common duct and remove the gall-bladder at the same operation, because should the common duct become obstructed following the choledochostomy, the gall-bladder would still be available for anastomosis to enter the stomach or duodenum, as may be indicated. Gall-bladder drainage is probably a better operation than removal after the common duct has been opened.

It is better before beginning the choledochostomy to estimate accurately the number of stones in the duct, as extensive exploring should not be done after the duct is opened. The common duct is grasped with two Allis forceps just below the entrance of the cystic

duct and a longitudinal incision is made; a common duct scoop is then passed gently into the duct and stones and debris removed. With little force the scoop should be passed into the duodenum to be sure the ampulla is not obstructed. A small rubber catheter is then passed upward into the common duct and the edges sutured around the catheter. If a cholecystostomy is not done at the same time, this tube should be passed up to the common hepatic duct.

The tube usually drains bile about 10 days and slips out itself. A soft rubber dam drain should be left down to the opening in the duct.

Patients with jaundice present a definite problem. The indicated procedure will depend upon the determination of the cause. The etiology of jaundice has been classified somewhat as follows: Fifty per cent—stone in the common duct; twenty per cent—catarrhal jaundice of the young; fifteen per cent—cancer of the liver, gall-bladder, ducts or pancreas; eight per cent—cirrhosis of liver and hemolytic jaundice; seven per cent—cholecystitis associated with hepatitis and pancreatitis. It is better as a general rule not to operate upon patients while they are jaundiced. If there has been a history of intermittent jaundice, the more desirable procedure is to wait for an interval. Many cases, however, are seen with a history of persistent jaundice, either with or without pain. Walters has done much to simplify the problems presented by this class of patients. He found that the high mortality following operation was due in a large percentage of cases to post-operative bleeding. In a careful study of the pre-operative records of those that had bled to death following operation, he found that their coagulation had been more than nine minutes. He then carried out a series of experiments, injecting calcium chloride intravenously to determine if he could by this means reduce the coagulation time. This method proved so successful that he now used it as a routine pre-operative measure in all jaundiced patients who have coagulation time of more than nine minutes. Five c.c. of 10 per cent calcium chloride is given intravenously once a day for three days and the reduction in coagulation time noted. Usually it drops from above nine minutes to from four to seven minutes.

Walters also found that the fatal cases following operation had been suffering from

hepatic and renal insufficiency, so he included glucose per rectum (1000 c.c. of a 3 per cent solution in twenty-four hours) and forced fluids in his pre-operative treatment. In this manner practically every case of persistent jaundice can be made ready for operation.

Surgery of the bile ducts resolves itself as a rule into procedures to relieve obstruction to the outflow of bile. Proper pre-operative consideration will save this class of patients much unnecessary manipulation and investigation, and, as a result, complications will be less, with consequent saving of lives. One should bear in mind, especially in this type of case where obstruction to the common duct and marked disease of the liver is evident, that cholecystography or the Graham gall-bladder function test is of little or no value, and one must rely upon a careful history and physical examination along with accurate laboratory work to make a correct diagnosis.

The question of malignancy as a cause of jaundice is an interesting problem. One should always bear it in mind, especially when the jaundice is painless and the patient is near the cancer age. Probably in suspected cases it would be wise to make an X-ray of the chest and spine to see whether any evidence of metastasis can be found. Occasionally a patient in this way will be saved an operation which will be of no value. Surgery of malignancy of the gall-bladder and its ducts probably will always be very unsatisfactory. Occasionally an early malignancy will be found in a gall-bladder after it has been removed and in this way the lives of some cases will be saved. Where the malignancy is blocking the common duct, palliative measures, such as forming an anastomosis between the gall-bladder and either the stomach or duodenum will often lengthen life and relieve suffering. This procedure should be carried out in well selected cases.

An operation of this type might also be indicated in cases of obstruction due to an enlarged lymph gland obstructing the common duct which cannot be safely removed.

The occurrence of malignancy of the gall-bladder and its ducts should become less as surgery improves and diseased bladders are removed earlier. The writer has seen during the past year three cases of malignancy involving these structures. In all three cases a very definite history of gall-bladder disease extending

over a period of from eight to ten years was obtained. I am sure, had these cases been operated on earlier in their disease, they would have been prevented horrible deaths. Experience with these cases, then, forces one to see the necessity of early operation in diseases of the gall-bladder.

One cannot consider this subject without saying a word about gall-stones. Gall-stones are the evidence of an infected gall-bladder. They are evidence of stagnation of bile in the presence of bacterial infection. The most common type is a cholesterol stone with calcium and bilirubin deposits. While most gall-stones form in the gall-bladder, one should bear in mind that they may form in the hepatic ducts or liver. If gall-stones are known to be present, the sooner the operation is performed the better. To prolong medical treatment is to invite complications, which may be the cause of an incomplete recovery after operation. In addition, the extent of the complications may render the patient unfit for the operation of choice, and one may be forced to do a gall-bladder drainage which may have to be followed by a removal of the gall-bladder later.

Adhesions between the gall-bladder and duodenum or stomach as a cause of symptoms is being called to the attention of the surgeon more and more each day. Fortunately these adhesions may be surmised before operation. A careful history, with accurate X-ray studies of the gall-bladder and upper gastro-intestinal tract, will lead one invariably to the diagnosis. These adhesions are evidence of infection in either the gall-bladder or duodenum. Their presence in the face of symptoms is an indication for operation. Usually the adhesions must be severed and the gall-bladder removed. The covering over of all raw surfaces to prevent a recurrence of adhesions is a very necessary part of the operation.

Whether a cholecystectomy or cholecystotomy should be the operation of choice in diseases of the gall-bladder has long been a mooted question. After years of argument, *pro* and *con*, certain very definite indications for each type of operation have been developed. Of course there will be border-line cases where the question will have to be decided by the surgeon's own judgment, but, generally speaking, a diseased gall-bladder should be removed wherever it can be removed safely without too



much risk to the patient and there is no indication that the gall-bladder may be later necessary for anastomosis to maintain a passage way for bile to escape from the liver. It is probably best never to remove a gall-bladder in the face of acute infection. Palliative measures usually cause these acute infections to subside; however, if the acute infections show no tendency to subside, in order to save the life of a patient, a cholecystotomy should be performed. It should be remembered that perforation of the gall-bladder rarely occurs. Large clinics reporting series of acute cases indicate that rupture occurs in less than one per cent of cases. Cholecystotomy is also indicated in patients who are poor risks, or where the added burden of removal would add too much load.

As stated before, two other indications for the drainage operation are where the common duct must be opened at the same time, or where it is evident the gall-bladder may be necessary as a means of anastomosis later.

One must mention something of the problem that often faces a surgeon when he finds a healthy looking gall-bladder in a patient who is having symptoms which appear to be coming from the gall-bladder. If in this type of case a thorough gastro-intestinal study of the stomach and duodenum has been made and the several gall-bladder function tests indicate that it is not functioning properly, the gall-bladder should be removed. With proper routine study the number of this type of cases will become less.

Of all the complications which occur after operations on the bile ducts and gall-bladder, bleeding, especially in jaundiced cases, is most troublesome. Blood transfusion and hemostatic serums here may be of great value. A few cases will be seen where symptoms persist after operation. In some of these stones were not removed at the time of operation, and in others the ducts were so thickened before operation was performed that they interfered with drainage. Should a biliary fistula persist, one must conclude that injury to the ducts occurred at the time of operation or that there is an unremoved stone in the common duct. In cases where cholecystostomy had been performed and symptoms recur, there may be a recurrence of gall-stones and the gall-bladder may have to be removed at a later date.

Gall-bladder surgery is very satisfactory. Clark Brooks, in a recent article in the *American Journal of Surgery*, reported 830 gall-bladder operations with 23 deaths or a mortality rate of 2.77 per cent. Other large clinics are reporting great numbers of cases with similar success.

The recent progress of gall-bladder surgery has been due to several factors: First, improvement in diagnosis; second, improved judgment; third, improved technique; and, last, but not least, a closer cooperation between the surgeon and the internist has developed.

The development of the Graham gall-bladder function test has been a great boon to surgery of this organ. So often patients come in with an indefinite history and it is in this type of case that an X-ray study of the gall-bladder is so helpful. Most of the large clinics are checking up their positive tests with surgery and finding about ninety per cent disease. Before the development of this aid, gall-bladder disease could be diagnosed with some degree of certainty in only about seventy per cent of cases, and it is indeed a happy feeling to know now that disease can be proven nine times out of ten before operation. It should be remembered that the test is a function test and one may have gall-stones and still have a normally functioning gall-bladder. Also that the test is of little value in jaundiced cases because of their obstructive nature. The test as it is now developed is safe and it should be used in all suspicious cases.

The closer cooperation between the internist and surgeon has been a big factor in this as well as all other types of surgery. A proper outline of pre-operative treatment and better judgment as to when to operate, along with as thorough study of other vital organs, can be best carried out with the aid of a competent internist. Then, too, these cases need careful post-operative treatment, especially with regard to diet, and here again the medical man has played a big part in the success of this type of surgery.

Time will not permit much of discussion of technique; however, the development of the gas anaesthetics has added increased safety to this as well as all other types of surgery.

Modern operating room tables allowing a favorable operative position have been a big help. Better lighting has improved visualiza-

tion and made operation much simpler. The covering over of raw surfaces for the prevention of adhesions has lessened the number of poor results, and, last, but not least, a more thorough understanding of the anatomy of the ducts has greatly diminished the number of duct injuries, which at one time were so embarrassing to the surgeon.

### MANAGEMENT OF PULMONARY TUBERCULOSIS.

By FRED F. OAST, M. D., Roanoke, Va.

Before discussing the actual management or treatment of pulmonary tuberculosis, I would like to call attention to the usual onset of this condition. We have all been impressed from time to time with the insidious onset of tuberculosis, and the origin of the disease is generally considered as apical. In a large number of cases this is true. A patient may have a small apical focus which may do one of several things: 1—It may become completely healed and apparently never affect the health of the patient. In this case the patient will probably have a scar in the apex which may lead to a variation in the physical examination. 2—It may progress to a fair degree of involvement without apparent symptoms; then it remains more or less quiescent at this stage for a considerable length of time, finally to resume a more progressive course with definite symptoms. 3—The case may from the first continue a rather progressive course with the usual insidious symptom becoming more and more pronounced until a definite break occurs. The above conditions usually respond to treatment, but require considerable time to become arrested.

The other common onset of pulmonary tuberculosis is a subapical and a more acute condition. The patient has apparently been well, and then rather suddenly develops fever—often 101 or 102—cough with expectoration, night sweats, hemorrhages, and rapid loss of weight. On examination the patient has a rather diffuse and extensive involvement and the apex may be clear. Cavitation may occur early and the disease is very progressive. Often this type of tuberculosis will respond nicely to immediate rest, and then at times it seems that nothing will deter it from its rapidly fatal course.

As to the management in any case of active tuberculosis, the first step is to put the patient at complete rest for a period of four to eight

weeks. After studying his reaction to rest treatment over this period, it then becomes necessary to decide upon the follow-up treatment. Some few years back rest treatment was considered about all that could be done for tuberculosis. Today we have artificial pneumothorax, phrenicotomy, cauterization of adhesions, and thoracoplasty at our disposal, and each has its place. In some instances it is important to decide early as to the manner of treatment.

If the patient is doing well with rest treatment alone, the tendency is at present to let this be the choice of treatment, especially if the involvement is bilateral to any extent. In so doing, he is kept at rest until all activity has ceased and improvement is apparent. At this point it is quite necessary to gradually increase the exercise of this patient. I would like to stress this point—that once a patient has begun actual improvement and no active symptoms are present, we have then a definite indication for restricted exercise, which, if increased gradually within the limits of the patient's strength, will tend to increase the patient's resistance, as well as better his mental attitude, and make for an earlier recovery. Occasionally this is neglected and the patient kept at complete rest much too long. During the above period of rest and convalescence, a well balanced diet, fresh air and a favorable environment are essential to the best results. Heliotherapy is being used to some extent, but the trend at present is against this form of treatment in pulmonary tuberculosis.

As to the surgical procedures, the results are not quite so rapid as in most other surgical conditions. For a variable length of time the treatment is a combined surgical and rest treatment. Artificial pneumothorax is usually the first recourse when surgery is considered. The ideal case for pneumothorax is that of a unilateral involvement, most often of the chronic fibroid or ulcerative type. The semi-acute exudative cases also do well sometimes when gradually compressed. If contemplating artificial pneumothorax, the decision should be made as soon as possible, as the longer it is put off, the more likely will adhesions interfere. Artificial pneumothorax is to be considered in (1)—Any unilateral chronic fibroid or ulcerative phthisis. A large number of these have cavities, and some hemorrhage freely. Improvement is much quicker and treatment



more satisfactory with the lung compressed. This may be the choice of treatment even though the patient is doing well on rest alone. A successful pneumothorax shortens the period of invalidism and this is often of paramount importance to the patient. (2)—Acute or sub-acute exudative cases that show no particular improvement in two months or so. This is rather a doubtful field, but marked improvement is seen in some of these cases. Pleural effusion is quite frequent in this group. (3)—Bilateral cases in which one lung is badly diseased and the other lung with small involvement which is apparently arrested. Occasionally, more or less as a last resort, extensive bilateral cases are compressed, first one lung, then the other. (4)—Any case of serious hemorrhage in which you can determine the source of bleeding.

Phrenicotomy is usually indicated in basal lesions and cases where the basal collapse is poor in artificial pneumothorax, although recently some splendid results have been reported in apical cases, especially with large cavities. It is also often done as a preliminary to thoracoplasty to lessen the shock of complete collapse.

The cauterization of adhesions is a recent, rather technical development, and can be accomplished expertly by only a few surgeons. It involves the use of a thoracoscope and a cautery inserted separately into the chest. This treatment is accessory to artificial pneumothorax.

Thoracoplasty is the most radical procedure. It is used after other treatments have failed. Often adhesions are entirely too dense for pneumothorax, and thoracoplasty must be resorted to. The selection of cases requires more judgment here than in pneumothorax, as the lung is permanently compressed, whereas, in the latter it may be inflated at will. Thoracoplasty finds another indication in persistent empyemata of mixed infection, a number of which result from tuberculosis effusion.

After any of the above surgical procedures have been resorted to, the case is then followed up as in the cases of rest alone. The patient is gradually put on increased exercise until his strength is well established.

*Shenandoah Life Building.*

Along life's path at every turn  
Is something more for you to learn.  
—Selected.

## NEWER CONCEPTIONS OF MASTOIDITIS.\*

By G. B. TRIBLE, M. D., F. A. C. S., Washington, D. C.

Probably everyone, layman as well as practitioner of medicine, has a conception or mental picture of mastoiditis. Historically, it was one of the first diseases considered to merit surgery. In the lay mind, it is associated with a swelling behind the ear, which all medical men now have come to realize is due most frequently to an external otitis and periostitis, or to a breaking down of the post-auricular gland. Relatively seldom it may be due to acute suppurative conditions of the accessory air cells of the middle ear, which, by eroding their cortex and appearing beneath the periosteum, or burrowing further to the tip of the mastoid, may cause a swelling in that area, perhaps even pointing down the line of the sternocleidomastoid, finally to give us the classic picture of Bezold's abscess. No longer ago than the past summer did the writer hear a conscientious practitioner of wide experience state that he had never had a mastoid infection under his care or supervision that came to a mastoid operation. Still another practitioner, well known and of wide experience in general surgery, stated that he had not found it necessary, during several years of very large practice in and out of an active county hospital, to do a paracentesis at night. There can be no question that both of these gentlemen were correct so far as one can be correct in his recollection. It is perfectly possible when one considers the infinite number of human beings in the world, the infinite variety of reactions to insults to the body economy, that one man can have conceivably an unlimited number of cases showing one type of pathology, while another man of equally wide and broad professional experience could have met diametrically opposite conditions. It is further possible that our conception needs revision, or, at least, a more thorough understanding of the possibilities in any given infection involving the middle ear and mastoid. We can, for all practical purposes, rule out the cryptic infections which do not demonstrate any active middle ear pathology at the time the mastoid infection is first noticed. We may also rule out the rare blood-borne infections that are sometimes seen in the exanthemata, which are

\*Read before Fairfax County Medical Society; Homeopathic Hospital Staff Meeting, Homeopathic Hospital; Hippocrates Galen Society, February and March, 1929.

infections of the temporal bone and which may occur to it, or any part of it, as a bone, and not because of its possession of a middle ear with its intricate structures and its projections about, above, behind, or below it.

Infections extending from the middle ear tend to go, according to our newer conceptions, by widely varied but definitely distinct modes of progress. The first in the order of simplicity is the coalescing type, which may be visualized as a series of waves of infection, somewhat as the waves of a rising tide, lapping the beach, each one extending a little further than the one before, involving a few more cell walls, breaking them down, softening the inter-cellular septa, absorbing their calcium, being held in check by a protecting layer of leucocytes and granulations around the margins, then overcoming in another onslaught this defensive layer, only to break down further by another extension. This may be carried on until finally the mastoid cells are thoroughly coalesced, walls destroyed by pressure necrosis, the invaded portion of the temporal bone converted into a mastoid abscess, which may not be checked until it reaches and absorbs the thin, dense, inner layer of the cortex over the lateral sinus, or the floor above. This gives rise to the peri-sinus abscess, or the extradural abscess, and shows in the radiograph an early clouding of the mastoid cells, a breaking down of the cellular structures and the typical radiographic appearance of a mastoiditis, which so far as the criterion of roentgenology is concerned, only presents a surgical simple mastoid. This is fortunately the mastoid most easily handled, one which may be treated palliatively and which responds kindly to eleventh hour surgery. This is the mastoid we have all been brought up under, in which there is but little question of dispute in diagnosis, one in which the absorbing process will soften the bone in the neighborhood of the antrum, and give us the bulging or sagging of the posterior superior wall of the external meatus. It will show on examination of the pus, by quantitative measures, increase in the calcium content characteristic of breaking down bone, and finally so disintegrate the external boundary that there will be an edema over the mastoid area, giving us the textbook picture we so often describe and unfortunately so seldom see.

The other type is commonly known as acute hemorrhagic or streptococcic mastoiditis, and

differs in almost all particulars from the first described. We have no defensive wall, no production of granulations filled with leucocytes staying the advance of the invasion, no coalescing and breaking down by pressure necrosis the inter-cellular walls, no production or destruction and liberation of calcium in the pus from broken up bone, and no typical radiographic report to throw light on the extent and severity of the infection. True, a slight haze may be tentatively suggested in the findings which may or may not be due to the existing infection, but clinically we are confronted by a picture of a systemic invasion associated with an acute suppurative otitis media, with pus showing hemolytic streptococci or the streptococcus mucosus of the German classification. Surgical intervention shows an intensively congested mucous membrane, free bleeding on operation, none of the gelatinous chicken-fat appearing masses in the cells, and, microscopically, there is an engorgement and distention of the arteries and veins, with small thrombi present in the venules of the mucosa. These small thrombi are considered to be Nature's effort at protection, but in an overwhelming infection, unfortunately, appears to be the method of extension. An extension by a thrombosis may end, if in the direction of the brain, by the production of a brain abscess of the acute variety, with no limiting membrane, and, if extending toward the sinus, may result in a sinus thrombosis without macroscopic involvement of the vessel wall, and no visual evidence of infection of the sinus plate. There may be a generalized infection of the blood stream producing bacteremia. The clinical picture is that of a very sick patient, in fact, prostrated. Chills and sweats may be noted, and the temperature curve is very irregular. Otoscopic examination in the early stage shows acute myringitis, with intense engorgement of the vessels of the drum. Paracentesis will give but a few drops of a sero-sanguineous fluid or there may be merely a discharge of blood. It must be kept in mind that this is a systemic invasion from its very onset, and the severity of the infection determines its extension. With a less severe infection there will be a thrombo-phlebitis limited to the mucous membrane. Resolution will then occur with a simple paracentesis or spontaneous rupture. With a more severe type, the thrombo-phlebitis will involve the small



veins in the inter-cellular walls. There will be a rapid destruction of red cells, a very marked leukocytosis with rather characteristic change in the polymorphonuclears. If the condition is extending, and is not held in check by the defenses of the blood stream, Nature calls to the bone marrow, and new cells are rushed to the defense. Their coming is comparable to poorly equipped and raw recruits being hurried into a battle line. The new-formed cells gradually increase in proportion to the total "poly" count, and the clinical picture of the patient corresponds to his pathological findings. Surgery here is done not to provide for the drainage and escape of pus, but to remove and destroy the infected thrombi in the areas that are accessible to surgical intervention. The question of the exact time for such an operation must be decided by the clinical picture presented by each individual patient and checked up by a study of his resistance, as shown in the production of his defense mechanism and evidenced by the changes in the differential white count, particularly in the increasing numbers of the new-formed cells. If intervention has not been in time, the condition goes on by extension of the thrombo-phlebitis into the large veins. We have our thrombo-phlebitis of the lateral sinus, which may extend to the jugular above, or below and backward to the torcular. A blood culture will show often a streptococcus, but its absence is no proof of its non-existence. The positive blood culture is most easily found within a few hours, up to about twenty-four after the primary invasion, and it disappears by the defensive mechanism of the blood, but, if relief is not had by surgical intervention, the increasing infection is not held in check by Nature, and we have a second appearance of bacteria in the blood stream, metastases to the lungs or joints, and the picture is that of a generalized septicemia. If the intervention is properly timed, the temperature tends to return to normal, the fall is by lysis, red cells increase, leucocytosis diminishes, the new-formed cells are no longer needed and no longer found, and the patient makes a recovery which is not as spectacular as the one following the opening and draining of the coalesced type of a mastoiditis, but which is nevertheless satisfactory.

There is another division clearly recognized, which, in its final culmination into a surgical case, may partake of either the coalescing or

the hemorrhagic types, and that is the chronic mastoiditis. This is a residual effect of previous suppurative middle ear conditions which have continued as a local focus, probably due to isolated areas of bone caries or to the formation of polypoid degenerative changes in the middle ear mucosa. These are frequently the cases which have had spontaneous perforations which were improperly placed from a standpoint of drainage, or perforations which were marginal and which destroyed the annulus tympanicus and which by a pressure necrosis have destroyed the mucons covering of the ossicles or tympanic cavity, eroded the bone, set up a point of caries and kept up a mild inflammatory reaction in the accessory air cells of the mastoid, which possibly have been followed by a deposit of the new-formed bone lacking in vitality, usually abnormal in its constituency. The final result is an acute infection involving again the mastoid process which may soften and absorb the bony structure, so that it is converted into either abscesses or areas of abscess formation; or the bone may prove its resistance to total destruction, when its nutrient vessels may become the pathway of invasion and an extension be set up in the surrounding structures, so that meningitis from extension from a chronic suppurative middle ear is not uncommon, while, on the other hand, if resisting infection and destruction, there may be an ingrowing of the epithelium from the canal or from the remnants of the old drum, which folds on itself and forms whorls of epithelial cells, the clinical cholesteatoma. The formation and production of a cholesteatoma may go on and may push away its bony walls until it occupies a large portion of the former mastoid cells, extending and enlarging the antrum, finally eroding the cortex and involving the dura. Taking up this last condition first, a decidedly new interpretation of the steps necessary to handle this situation is expressed by Tobey, of Boston, who advocates merely an intra-meatal operation, removing the projecting overhang, exposing the enlarged mastoid antrum, removing by incision and dislocation the remnants of the ossicles, clearing away the debris and accumulated fragments of the disintegrated epithelial cells of the broken down mass and leaving the outer walls of the cholesteatoma to serve as the lining membrane of the enlarged middle ear and antrum.

There is yet another division—of but very

little importance in our contemporary American medicine—and that is a tubercular mastoid, practically non-existent in private practice in this country, though of considerable importance on the Continent, and given as high as 15 per cent in Viennese clinics. Only by extensive bacteriological research can such a diagnosis be established, and its treatment does not differ in many particulars from that of other tubercular lesions of bone.

There is great danger in forming opinions from isolated cases and the various reports of miraculous cures should not blind us to the possibilities of erroneous interpretations or that the wish might perhaps have been father to the thought. This probably accounts for the many successful outcomes reported by various writers with all sorts of treatment by the most complicated chemicals, coupled with electrical assistance, as in zinc ionization, the cures by injection of aseptic milk, the use of radium, X-ray, and reflected sunlight or the ultra-violet rays. Largely is this due to the questionable diagnosis of mastoiditis in such cases, which has been based on the fact that the X-ray showed an involvement of the antrum and cells and that there was pain on pressure and in some cases swelling, or edema and swelling over the mastoid area. These phenomenal cures by other than surgical means of conditions which usually require surgical intervention cannot be substantiated in a majority of cases, and an isolated case cannot form a basis for the neglect of commonly recognized surgical measures. There is a surprising uniformity in the records of all large special hospitals in the percentage of cases coming to operation and in types of pathology found. There is one important group, however, in which operative intervention is becoming less frequent, and that is in the chronic mastoiditis following prolonged suppurative middle ear disease. The operations are fewer and the results striven for have changed from the conception of a successful radical mastoid operation, as indicated by a dry ear, to that of a radical mastoid which has cleared up a dangerous lesion, such as carious bone, to be removed, and not necessarily stopped an otorrhea. In passing, it must be noted that the reaction in regard to the acute suppurative middle ear has also undergone a change. By most men in a recent large convention of specialists, the idea of repeated paracenteses in

the same individual was decried, considered unnecessary and a hindrance to the natural evolution of healing. A free paracentesis extending from well up behind the long process, down the full length of the process, across the lower border of the process and up anteriorly, making nearly a letter "U," was advocated. Sterilization of the canal is considered unnecessary. Cultures were advised to be taken from the paracentesis knife. No suction is to be employed to remove the secretions because of the danger of dislocating the finer structures. No stress is laid on the dry treatment following paracentesis, but irrigation is advocated to remove the accumulated blood and secretions, which gradually cease as the condition subsides.

Complications of mastoiditis follow in exactly the same groups as the pathology. An understanding of the type presented will permit a conjecture as to the outcome, and what complications we should be on guard against.

Kopetzky has gone into this subject at great length, and his findings are, within present knowledge, impossible to surpass. In a review of 126 cases of coalescent mastoiditis, he finds subperiosteal abscess in twenty-five, meningitis in five, labyrinthitis in one, extradural abscess in six, perisinal abscess in thirty-four, deaths occurring in eleven, or 9 per cent. In the forty-four cases of hemorrhagic mastoiditis, perisinal abscess was in four, sinus thrombosis in fifteen, meningitis in two, death occurring in seven, or 16 per cent, nearly twice the percentage fatality as compared to the coalescent type.

1801 Eye Street, Northwest.

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## Correspondence

### Concerning Poliomyelitis.

August 8, 1929.

#### TO VIRGINIA DOCTORS:

In view of the present interest in poliomyelitis and the use of the serum of convalescents in connection with this disease, we feel that it might be helpful to the profession to give some information in addition to what was contained in recent letters to Virginia doctors.

In many cases poliomyelitis can be diagnosed before the paralysis develops. It is most important that the disease should be recognized in the pre-paralytic stage for it is during that stage that the convalescent serum



should be administered. Two physical signs—stiffness of the neck and rigidity of the spine—are pathognomonic of involvement of the nervous system. The pre-paralytic stage lasts for from one to three days.

The usual symptoms are fever, headache, gastro-intestinal disturbance, either vomiting or constipation, irritability and pain usually located in the back, back of the neck or in the limbs.

The two physical signs which should be especially looked for are, (1) stiffness of the neck. This is best elicited by flexing the neck on the trunk. The head can be brought half way forward but in attempting to bring it farther the child resists and complains of pain. (2) Limitation of the movements of the spine. This is best tested by having the child sit up in bed. The normal child, or child ill with other infections, has a flexible spine. The child in the pre-paralytic stage of poliomyelitis keeps the spine rigid.

Other physical signs of not so much importance are constipation, flushed face with circum-oral pallor and rapidity of the pulse in proportion to the temperature. The reflexes at this stage are usually exaggerated.

For those cases which give the two important physical signs noted above, examination of the spinal fluid will give verification. The fluid is under pressure, slightly cloudy, shows an increased cell count and increased globulin.

It is claimed that in many cases the use of convalescent serum prevents death, prevents the child from becoming paralyzed and prevents the severity of the paralysis. *It should be given in the pre-paralytic stage.* The dosage varies. Most authorities recommend from 15 to 25 c.c. into the spine with 50 c.c. intravenously. The State Department of Health has at present a limited supply of this serum but it is extremely scarce; and we cannot ask people to give their blood unless it is to help a case definitely diagnosed by spinal puncture.

ENNION G. WILLIAMS,  
*State Health Commissioner.*

## Abstracts

### The Role of the Vaccination Dressing in the Development of Postvaccinal Tetanus.\*

Charles Armstrong, Surgeon, *United States Public Health Service*, in a recent article, says

\*Author's abstract from *Public Health Reports*, August 2, 1929, v. 44, pp. 1871-1883.

that investigations recently reported by the Public Health Service have demonstrated that dressings strapped over a vaccination site are the essential factor in the absence of which postvaccinal tetanus will rarely, if in fact ever, develop following cutaneous anti-smallpox vaccination. This conclusion is based upon the absence of postvaccinal tetanus following vaccinations on which fixed coverings were not applied. This open method of vaccination is now widely employed. On the other hand, 116 cases of the complication referred to have occurred over a series of years in individuals whose "takes" were covered by some type of shield or dressing strapped over the site.

It was, moreover, shown that monkeys and rabbits which are quite refractory to experimental postvaccinal tetanus, provided the intentionally tetanus-contaminated cutaneous vaccinations are left without dressings, became highly susceptible when the same type of vaccination was covered by some type of commercial dressing strapped to the vaccination site.

Experience has shown that shields and dressings, in comparison to openly treated vaccinations, tend to produce deep, severe "takes" and to favor the development of an exudate.

This accumulation of broken down material, retained by the dressing at the vaccination site, wherein tetanus organisms may become buried and thus find anaerobic conditions, is the essential without which postvaccinal tetanus will not develop under natural conditions in cutaneous vaccinations.

Where fixed coverings are not employed, the continual wiping and ventilating action exerted when the arm is moved within the clothing tends to keep the vesicle dry, cool, and firm. This, as shown by experience, tends to prevent the development of exudates. Moreover, if exudation does take place the moisture is promptly wiped away by the sleeve or bed clothes.

When dressings are strapped over a vaccination the accumulation of exudate beneath may lead to the development of a foul odor. Such an odor has been noted so frequently in cases developing postvaccinal tetanus that its presence should be considered a danger signal. A foul odor has not been encountered by the investigator in openly treated vaccinations.

The fact that postvaccinal tetanus has been confined to primary "takes" is explained by assuming that an accumulation of necrotic exu-

date sufficient to supply the conditions necessary for tetanus to develop occurs only in the relatively more severe primary vaccinations which were covered by dressings.

The long interval from vaccination to onset of tetanus in these cases (usually about twenty-one days) is also explicable on the assumption that the organism is unable to develop until it becomes embedded in a mass of necrotic exudate such as might be expected to develop under suitable conditions from the 10th to 15th day following a primary vaccination.\*

The contention that a deep implantation of tetanus spores in a devitalized medium is the essential condition for the development of postvaccinal tetanus was also confirmed by the fact that the intradermal (injection) method of vaccination proved to be an efficient method for producing experimental postvaccinal tetanus.† It was found that 75 per cent of the animals vaccinated by this method, utilizing a virus intentionally contaminated with heated tetanus spores, developed postvaccinal tetanus even in the absence of dressings. Moreover, cutaneous vaccinations in animals which were shown to be practically insusceptible to tetanus infection when a tetanus-contaminated vaccine is employed, provided the lesion was treated without a covering, became highly susceptible when the tetanus spores were introduced via the blood stream or into the subcutaneous lymphatic draining to the lesion. These routes of introducing the spores enabled some of them to reach the deeper areas of the "take" where they could develop their toxin. Infection by way of the blood stream or lymphatics is thought, however, to be uncommon, if indeed it ever occurs, in the postvaccinal tetanus of man: since such a conception is contrary to the general experience with tetanus in ordinary wounds. Moreover, the fact that openly treated cutaneous vaccinations in animals are so readily infected through the blood stream or the lymphatics, while in man, as far as known to us, no case has developed in this type of vaccination argues strongly against such a route of infection. These considerations, together with the fact that prolonged search at the Hygienic Laboratory of the Public Health Service has failed to demonstrate tetanus germs in commercial vaccine, force one to con-

clude that the infection is due to the accidental contamination of the "take" from other sources.

While it may not be possible to eliminate such occasional accidental contaminations, it seems that postvaccinal tetanus can be eliminated by observing a proper vaccination technique. A proper vaccination insertion as defined by the Public Health Service should be small and superficial (never over 1/8 inch in greatest diameter), and made by some method that does not remove the epidermis. Such insertions treated openly, i. e., without the use of shields or dressings strapped to the site, have never in so far as is known been followed by postvaccinal tetanus.

The physician is therefore advised to abandon the use of dressings which are fixed at the vaccination site. He should also advise the vaccinated individual, or those responsible for him, concerning the dangers of home-applied shields and dressings.

Further information concerning vaccination methods and complications may be had by addressing the Surgeon General of the United States Public Health Service, Washington, D. C.

## Proceedings of Societies

### The Fauquier County Medical Society

Held an interesting annual meeting in the Spring, as guests of Dr. S. W. Maphis and Dr. M. B. Hiden, at the former's home in Warrenton, Va. Dr. Richard Mason, of The Plains, presided. There was a large attendance of doctors from both Fauquier and Loudoun Counties, as also several dentists. Papers were read by Dr. M. B. Hiden, Dr. J. L. Thornton and Dr. W. G. Trow, all of Warrenton, and these were freely discussed. In addition to this program, the annual election of officers was held, which resulted as follows: President, Dr. Wade C. Payne, Haymarket; Vice-Presidents, Drs. J. E. Knight, Catlett, and W. G. Trow, Warrenton; Treasurer, Dr. V. L. McCullers, Remington; Secretary, Dr. J. R. Allen, Marshall; and Assistant Secretary, Dr. Martin B. Hiden, Warrenton. A delightful supper followed the meeting.

### The Mecklenburg County Medical Society

Had a well attended meeting in June, under the presidency of Dr. C. V. Montgomery, of South Hill. Dr. A. T. Finch, Chase City, was in his accustomed place as secretary. It was

\*In ordinary traumatic tetanus of equal severity the incubation period is usually less than 10 days.

†In the intradermal method of vaccination which has been employed to a limited extent .1 c.c. to .2 c.c. of a diluted virus is injected into the skin by means of a syringe.



stated that the members of the Society had inoculated eighteen hundred children with the toxin-antitoxin, for the Mecklenburg County schools, for which they received just the amount which would have been paid to the State Board of Health. The physicians entered into the work heartily and did it efficiently. After electing delegates for the Charlottesville meeting of the State Society, the Society adjourned to meet at Chase City in September.

### The Augusta County Medical Association

Held its annual business and social meeting, August the 7th, at 4 P. M., at Valley Mills Swimming Park, under the presidency of Dr. George F. Hollar, of Waynesboro. There was a large attendance and following the business meeting a chicken dinner was served. Several new members were admitted and delegate to the Charlottesville meeting of the State Society was elected. The following are officers elected for the ensuing year: President, Dr. Richard P. Bell, Staunton; first vice-president, Dr. J. E. Womack, Staunton; secretary, Dr. W. F. Hartman, Staunton, R. D.; and treasurer, Dr. T. M. Parkins, Staunton. The two last named officers were re-elected.

### Preliminary Report Made Before Committee on Post-Graduate Study of the Medical Society of Virginia.

At a meeting of the Committee on Post-Graduate Study of the Medical Society of Virginia, June 19, 1929, Mr. George B. Zehmer, Director of the Extension Division of the University of Virginia, submitted the following preliminary report on the study of the needs and opportunities for post-graduate medical instruction in Virginia.

#### MR. ZEHMER'S REPORT

I submit herewith a preliminary report on the study of the needs and opportunities for post-graduate medical instruction in Virginia, which study I am making at the request of your committee. I wish to emphasize the fact, however, that this report is brief and tentative. The final report should be in your hands on or before October 15.

Rather complete records have been collected on post-graduate medical extension activities in the States of Michigan, Iowa, New York, Pennsylvania, North Carolina, Minnesota and Wisconsin, and in the boroughs of Brooklyn and Manhattan, in New York City, and in the city of Philadelphia. A bibliography has been prepared on the subject of post-graduate medical instruction both in this country and abroad. While a study had been made of the systems that are now in vogue in this country, a thoughtful digest of the bibliography on the subject has not yet been completed. This report is based on the investigations which have thus far been made

and on personal interviews that have been held with leaders in the work. The report sets forth in the main a sort of composite picture, or cross-section, of the educational activities that are now being carried on in the field of post-graduate medical instruction in the several states of this country. It may suggest points of departure for Virginia. For convenience the subject will be conducted under topical headings.

I. NEEDS FOR POST-GRADUATE MEDICAL INSTRUCTION.—In dealing with the question of the needs for post-graduate medical instruction in Virginia, it will be approached from four points of view:

(1) There will be set forth a statement of the recent progress that has been, and that is now being, made in both the theory and practice of Medicine.

(2) Attention will be called to, and brief outline made of, the several experiments or practices in post-graduate medical instruction that are now being carried on in this and other countries.

(3) A report will be made on the opinions of leading physicians both in and out of the state on the needs for this new type of instruction in the field of Medicine.

(4) Summaries of questionnaires to Virginia physicians on the subject of the needs and opportunities for post-graduate instruction will be presented.

II. COURSES OF INSTRUCTION.—One or all of three types of courses are usually offered. These are lecture series, short courses, and intensive courses.

*Lecture Series* are usually the starting point and remain the most popular type of work both from point of view of general interest and attendance and in methods of presentation. Though popular, they may be made truly educational if we can accept the verdict of those who have had experience in this work. There is no sequence in subject matter in lectures of this type. Whereas Lecture I may be on Methods of Treating Infections of the Hand; Lecture II might well be on Backache or the Treatment of Pneumonia. Much can be done to make this type of lecture meet seasonal or epidemical demands.

Lectures of this type come at regular intervals, usually weekly—though at times semi-weekly, at others bi-weekly—for a definite number of weeks and for appropriate seasons of the year. In rural districts, such lectures are usually held in the spring, summer or fall. In cities, the practice is usually to hold these lectures in the fall and early winter, and in later winter and early spring. This type of work can be easily adapted to supplement typical medical society meetings.

*Short Courses*, the second type of post-graduate instruction usually found, are somewhat more orthodox as an educational method than the lecture series. Each course deals with one subject only. In practice one usually finds from eight to fifteen lectures, generally ten in number, in a short course. Generally there is one lecture a week at the same time and place throughout the course. Whereas, in the lecture series it is commonly the custom to vary the speakers from meeting to meeting, in a short course it seems wise to secure a single instructor to conduct the entire course. The time of the year for short courses can be adapted to the needs of the community in which they are offered. Summer months seem the most practical for courses for rural physicians, whereas the late fall, winter or early spring months seem most appropriate for urban doctors.

*Intensive Courses.* Intensive courses, as the term implies, deal rather profoundly and at considerable

length with the subject matter under consideration. They, too, consider only one subject throughout the course. The subject would naturally be treated more fully and thoroughly than by the methods employed in the short course. Generally there are from twenty to fifty hours, divided between informal lectures, discussions and demonstrations, in an intensive course. The intensive courses are almost necessarily conducted in connection with some well organized hospital or medical school. The willingness of members of the staff of the hospital or medical school to assist in this work is necessary before courses of this type can be undertaken. The number who may register for intensive courses is generally in practice limited from three to five. The cost to physicians enrolled is usually considerably higher than that for attendance either on lectures or short courses.

*Special Types.* In addition to the three general types of instruction just discussed and more generally found, the following special types have been observed and are worth notice. Of these the *concentrated short courses and clinics* are the most common. In this method usually from three to as many as ten days consecutively are set aside for work in one or more subjects. Such courses or clinics are commonly held in connection with a hospital or medical teaching center where use can be made of clinical materials, laboratory equipment, and opportunity for demonstrations can be had. The work during the entire period may be devoted exclusively to one subject, such as Pediatrics or Internal Medicine or Physical Diagnosis; or it may be so divided that attention will be given to a number of different subjects and opportunities offered to the attending physicians to select topics of most interest. The quarterly clinics that are planned by and conducted at the Medical School of the University of Virginia are typical of such concentrated short courses.

*Libraries.* In a number of centers much interest and attention is now being given to the development of medical libraries in connection with hospitals, medical teaching centers and central offices of county, city or state medical societies or associations. In some of the large centers, such as Manhattan or Brooklyn, in New York City, for example, which are by no means typical of conditions that are to be found throughout the country, quite large libraries have been developed and library staffs are being employed to aid the physicians in every way possible. It is of interest to note in this connection that the library in Brooklyn is now working on a plan to make it possible to send by mail to the physicians who cannot come to the library building conveniently special types of materials for reference and use for a specified time. We recall also that the medical school in Richmond has for some time been working on a plan to put its library more readily at the disposal not only of the physicians in Richmond and vicinity, but in so far as possible to those living throughout the state. The original plan was to make this possible through package loan libraries.

Irrespective of progress which has been made in developing medical libraries as a means of instruction for practicing physicians, it has, we feel confident, great possibilities and is a means which should be stressed.

*Alumni Relations.* While not much progress has been made in first attempts of medical teaching centers to assume some guardianship over their graduates in the matter of keeping them in touch with new developments in medical theory and practice, the fact that steps are being made along this line is worthy of notice and deserves thoughtful considera-

tion. Medical teaching centers occupy a strategic position in relation to the whole question of continuing education for doctors. Perhaps the point of departure for a medical school is with its own graduates.

Some students of the problem of post-graduate medical instruction say that unless educational contacts are established with the practitioner during the ten years immediately following his graduation, he is hopelessly lost as a prospective post-graduate student.

*The Radio.* For special types of instruction to physicians, especially at times of epidemics or other emergencies, the radio as a special agency for reaching practitioners perhaps should not be overlooked.

III. *Methods of Instruction.*—Reports on post-graduate medical instruction practice almost universally emphasize the fact that this type of instruction must deal with the practical and in a practical way. The instructor must avoid in so far as possible highly technical terminology. In the main the work must deal with common diseases and problems. It is the universal opinion of those having experience with the work that written lectures or reports always fail as a method of presentation. The clinical method is recommended as the most effective one for reaching the practitioner. Slides, pictures and charts, when carefully selected, also prove most effective aids. In this connection, I recall that Dr. George H. Meeker, Dean of the Pennsylvania Graduate School of Medicine, says that it is wise for the instructor to assume that the practitioner knows very little about specific methods and means for treating even the most commonplace diseases and for meeting the most general problems. While such an approach will mean review work for many physicians, it will insure thorough grounding in fundamentals in all first attempts.

*The Place and Purpose of Post-Graduate Medical Instruction.* There arises at this point the question of the place and function of what we have been referring to as post-graduate medical instruction. From our investigations, it seems obvious that the work is distinct from that commonly done in the medical schools leading towards the M. D. Degree and from the more systematic graduate work that one should get in specialized and formally conducted graduate medical schools. In so far as possible this new type of work should supplement but not assign to itself the fields now covered by these two agencies; but it seems to us that there is a distinct field for a new type of instruction that is not designed to train specialists nor to advance the theory of Medicine, but which has as its principal aim the task of keeping the average practitioner alert to the progress which is being made in the field of his practice and to improve the quality of medical practices. Therefore, in the main, as has been suggested, this type of work must be made, we believe, exceedingly practical and it must deal on the whole with the more general and common problems. We see the danger of confusing this type of work with most serious graduate medical education. We are inclined to think that a new term might be devised which would make this distinction clear and which would at the same time dignify even the most elementary attempts on the part of the physician to keep abreast of the new developments and advances which are made in his profession. To give the opinion of Dr. Meeker again, he states that post-graduate medical instruction, of the type which we have been discussing, calls for as much thought, planning and preparation in advance of any program as is required for the establishment of a medical school or



hospital. Failure to realize this fact, he felt, meant failure in first efforts.

*Instructors.* Two policies are found in reference to the choice of instructors either of which, or a combination of which, may be adopted—depending somewhat on local conditions:

(1) Selecting—and necessarily at rather large financial costs—only outside or out-state physicians or teachers. North Carolina has adopted and adhered strictly to this policy.

(2) Relying exclusively—with relatively small expenses—on outstanding local physicians and teachers. Brooklyn has adopted rather largely this plan.

Perhaps a wise plan would be a combination of these two which seems to be the method generally employed.

*Organization and Control.* There is not much uniformity in organization and methods of control in the several plans that are being carried on in this country. Usually the work has grown up about one or two, or at the most four or five, personalities—at times connected with medical schools, at others, outstanding practitioners, and again from wise leaders among officials of medical societies or associations. Hence, at times the work has been independent of state or local medical societies, except in so far as such organizations wished to co-operate. It is well to point out that the work is evolving and there are few set or fixed plans in practice today. The experience in the State of Michigan is perhaps the most interesting, from point of view of its growth and development and will be discussed in detail in the final report. In all of the present attempts, however, there seems to be a growing tendency for the work to be closely affiliated with the interests and activities of county, city or state medical societies or associations. Interest eventually must spring from or be aroused in the practitioners themselves. This does not, however, place less importance on the need for wise leadership or for the necessity of the fixing of responsibility. Furthermore, the particular type of organization, especially in its details, must be adapted to meet local needs and conditions. Thinking now in terms of a state-wide program for Virginia, the following in general outline may be the best form of organization:

(1) An Executive Committee, preferably small, composed of representatives from the Medical Society of Virginia, the State Department of Health, and the two medical schools in Virginia. Perhaps a prominent lay member is desired. I think Michigan, for example, in their experience would recommend a lay member.

(2) An Executive Officer in the person of some outstanding physician or medical teacher in the state who is personally interested in the movement, who is held in high esteem by physicians throughout the state, who could make wise decisions on such questions as the selection of speakers or instructors, choice of subject matter or of lectures or courses, who could wisely attend to details of publicity and announcements and who, above everything, would be willing for the first twelve or eighteen months or two years to give a large part of his time to the work. We are almost prepared to say that the immediate success of attempts at post-graduate medical instruction depends upon the wise selection of this officer.

(3) An able secretary, preferably a man, to assist the Executive Officer, to learn the details, methods and eventually to do most, if not all, of the necessary travelling and to relieve the Executive

Officer of most of the details in planning, announcing and organizing the work.

(4) A part-time stenographer with some small provision for office supplies and equipment.

*Finance.* There is no uniformity in practice in methods of financing post-graduate medical instruction. Where the work is sponsored by an individual or group of individuals and generally by state university medical or extension departments, fees are required which will support either in whole or in part the program. Where work is sponsored by medical societies, at times the policy is to charge a small fee to doctors to help support the work, at others to support it entirely, by the fees paid to such medical societies by its members. In the latter case small fees are charged to physicians not members of the association sponsoring the program. From the studies which have been made, however, and from several years' experience dealing with adult students of many types and representing many professions, we recommend very strongly that at least fifty per cent of the cost of the work attempted along this line in Virginia be paid by the doctors who enroll. Not only in our opinion does it seem fair that the doctor in practice should pay a part of the cost, but in this, as in all forms of adult education, payment of at least a part of the cost of instruction by those taught insures an interest which it seems almost impossible to secure through the policy of free education.

*Importance of Attention to Details of Organization and Management.* All of the agencies at work in this field emphasize the very great importance of careful attention to details, especially to such particulars as the following:

The form of announcements of courses.

Care in the time of announcements, and in announcing programs sufficiently in advance.

The completeness of announcements.

Follow-up announcements.

Methods of publicity.

Care in the selection of suitable places of meeting.

As an illustration of the importance of attention to details, both Brooklyn and Philadelphia report that attention to the single factor of securing parking space for the care of physicians near the building at the time of the meeting alone would increase attendance from approximately thirty to forty per cent.

Despite the bad reputation the word has, there must be a certain kind of salesmanship in putting on a course successfully, especially in connection with the first effort.

We ask for criticisms on any suggestions which have been contained herein and for further suggestions that may help in presenting finally a more complete and valuable report.

Respectfully submitted,

GEORGE B. ZEHMER.

Director.

The various features of this report were discussed at length by the members of the Committee, following which, the chairman, Dr. J. W. Preston, asked Mr. Zehmer to give a complete report when he had secured all information he is seeking.

# Medical News of the Past

## Presidents and Places of Meeting of Medical Society of Virginia.

At this season, when interest centers around the meeting of the Medical Society of Virginia, it seems that every one will be interested in refreshing themselves on the names of presi-

dents and places of meeting of our former sessions.

Dr. James B. McCaw, Richmond, was chairman of the convention which assembled in Richmond, November 2, 1870, to organize the Medical Society of Virginia. Below is given a list of presidents, followed by names of places and years of meetings over which they presided:

PRESIDENT	PLACE OF MEETING	YEAR OF MEETING
Dr. R. S. Payne, Lynchburg	Richmond	1871
Dr. A. M. Fauntleroy, Staunton	Lynchburg	1872
Dr. Harvey Black, Blacksburg	Staunton	1873
Dr. A. G. Tebault, London Bridge	Norfolk	1874
Dr. S. C. Gleaves, Wytheville	Abingdon	1875
Dr. F. D. Cunningham, Richmond	Richmond	1876
Dr. Jas. L. Cabell, University	Charlottesville	1877
Dr. J. H. Claiborne, Petersburg	Petersburg	1878
Dr. L. S. Joynes, Richmond	Richmond	1879
Dr. Henry Latham, Lynchburg	Alexandria	1880
Dr. Hunter McGuire, Richmond	Danville	1881
Dr. G. William Semple, Hampton	Old Point Comfort	1882
Dr. W. D. Cooper, Morrisville	Fauquier White Sulphur Springs	1883
Dr. J. E. Chancellor, Charlottesville	Rockbridge Alum Springs	1884
Dr. S. K. Jackson, Norfolk	Rawley Springs	1885
Dr. Rawley W. Martin, Chatham	Alleghany Springs	1886
Dr. Bedford Brown, Alexandria	Fredericksburg	1887
Dr. Benjamin Blackford, Lynchburg	Richmond	1888
Dr. E. W. Rowe, Orange, C. H.	Norfolk	1889
Dr. Oscar Wiley, Salem	Roanoke	1890
Dr. Wm. W. Parker, Richmond	Rockbridge Alum Springs	1891
Dr. H. Gray Latham, Lynchburg	Lynchburg	1892
Dr. Herbert M. Nash, Norfolk	Alleghany Springs	1893
Dr. William P. McGuire, Winchester	Charlottesville	1894
Dr. Robert J. Preston, Abingdon	Richmond	1895
Dr. Wm. L. Robinson, Danville	Wytheville	1896
Dr. Geo. Ben Johnston, Richmond	Rockbridge Alum Springs	1897
Dr. Lewis E. Harvie, Danville	Hot Springs	1898
Dr. Jacob Michaux, Richmond	Virginia Beach	1899
Dr. Hugh T. Nelson, Charlottesville	Richmond	1900
Dr. J. R. Gildersleeve, Tazewell	Charlottesville	1901
Dr. R. S. Martin, Stuart	Lynchburg	1902
Dr. John N. Upshur, Richmond	Newport News	1903
Dr. Joseph A. Gale, Roanoke	Roanoke	1904
Dr. Wm. S. Christian, Urbanna	Richmond	1905
Dr. Lomax Gwathmey, Norfolk	Norfolk	1906
Dr. Paul B. Barringer, Charlottesville	Charlottesville	1907
Dr. Wm. F. Drewry, Petersburg	Chase City	1908
Dr. Stuart McGuire, Richmond	Richmond	1909
Dr. E. T. Brady, Abingdon	Roanoke	1910
Dr. O. C. Wright, Jarratt	Norfolk	1911
Dr. Hugh M. Taylor, Richmond	Richmond	1912
Dr. Southgate Leigh, Norfolk	Lynchburg	1913
Dr. Stephen Harnsberger, Catlett	Washington, D. C.	1914
Dr. Samuel Lile, Lynchburg	Richmond	1915
Dr. Joseph A. White, Richmond	Norfolk	1916
Dr. Geo. A. Stover, South Boston	Roanoke	1917
Dr. E. G. Williams, Richmond. Owing to influenza epidemic and the World War, meeting was not held in 1918, and Dr. Williams held over as president.	Richmond	1919
Dr. Paulus A. Irving, Farmville	Petersburg	1920
Dr. Alfred L. Gray, Richmond	Lynchburg	1921
Dr. E. C. S. Taliaferro, Norfolk	Norfolk	1922
Dr. John Staige Davis, University	Roanoke	1923
Dr. W. W. Chaffin,* Pulaski	Staunton	1924
Dr. Hunter H. McGuire, Winchester	Richmond	1925
Dr. W. L. Harris, Norfolk	Norfolk	1926
Dr. J. Shelton Horsley, Richmond	Petersburg	1927
Dr. J. W. Preston, Roanoke	Danville	1928
Dr. J. Bolling Jones, Petersburg	Charlottesville	1929

\*On account of Dr. Chaffin's illness, the first vice-president, Dr. H. H. McGuire, of Winchester, presided in 1924.



# CHARLOTTESVILLE, VIRGINIA

Convention City for the  
Sixtieth Annual Session of  
Medical Society of Virginia  
October 22-24, 1929



Serpentine Wall, University of Virginia.

The sixtieth annual meeting of the Society presents somewhat unusual and interesting features due to the fact that it is being held in Charlottesville and that it is to be in conjunction with the dedication of the Medical School's new buildings at the University. Many changes in the City of Charlottesville, in Albemarle County, and in the University have occurred since the Medical Society of Virginia met there twenty-two years ago. There will be an excellent opportunity there-

fore to combine the medical meeting with a survey of the marked progress which is taking place in and around one of the older cities of the State.

In recent years Charlottesville has grown in size and population; many new industries have become established there, which have increased the opportunities of business and employment. In a medical way the growth has been phenomenal.



Blue Ridge Sanatorium.

1. Infirmary; 2. Children's Building; 3. Masonic Building.

The Blue Ridge Sanatorium has developed to a capacity of 230 adults and forty children and is ideally located and arranged for the proper care of pulmonary cases.





Martha Jefferson Hospital.

The Martha Jefferson Hospital has nearly completed a sixty bed addition to its former thirty bed unit. This building will make available an up-to-date private hospital for

residents of the community and will allow the physicians associated therein much improved facilities of all kinds.

Several churches have greatly improved or rebuilt their former places of worship; especially is this true of the Baptist, Methodist, and Episcopalian, so that with much improved and expanded facilities they may spread their influence more easily over a much greater field.

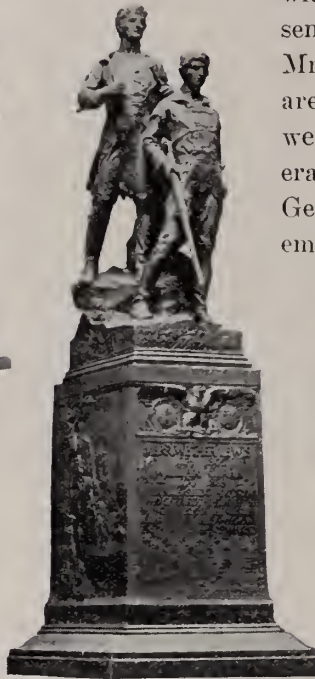
A new and up-to-the-minute hotel, The Monticello, has brought Charlottesville to the front in providing accommodations for the tourist and traveler. The hotel offers all the advantages of the modern hotel usual in a much larger city. It is situated on Court Square just opposite the very old Court House and the Stonewall Jackson Park in which is a beautiful and artistic statue of General Jackson on one of his chargers. The Monticello searchlight is on the roof of this hotel and sheds its 1,380,000,000 candle-power beam for hundreds of miles to warn the traveler by night that the town is still there.



Hotels—Queen Charlotte, Gleason and Monticello.



Robert E. Lee Monument.



Lewis and Clark Monument.



"Stonewall" Jackson Monument



Jefferson  
McConnell

George Rogers Clark

Homer  
Jefferson

There are in various parts of the city and University a number of noted statues of famous figures in history. Four of these statues with their surrounding parks have been presented to the city by that generous gentleman, Mr. Paul Goodloe McIntire. These statues are excellent examples of sculpture and are well worth an inspection. The one of General Jackson by Stanley Keck and the one of General Lee on "Traveler" can be especially emphasized.





McIntire Public Library.

The Public Library, also a gift of Mr. McIntire, is one of the best examples of pure colonial architecture hereabouts. There are

some 14,000 volumes in this building so that its service is widespread, and its usefulness and popularity is increasing rapidly.



Filtration Plant.

About seven years ago a new source for water supply was found and a new filter plant and distribution center built. Today in consequence this community has a plentiful supply of perfectly pure, soft water. To those who are acquainted with the older conditions, assurance may be given that a distinct and pleasant surprise is in store for them.

The latest and most popular development for social and physical recreation is the new

Farmington Country Club. Farmington was one of the most attractive estates in this vicinity and was surrounded with the true atmosphere of former times; the house and its associated buildings were built soon after Monticello was finished so that they contain clear cut evidence of Jefferson's influence. These buildings with about eight hundred acres of land were purchased and have been reconstructed to serve as a country club with an

eighteen hole golf course, a swimming pool, a horse-show ring and steeple-chase course, and all the necessary adjuncts to make it an up-to-date club. The scenery as viewed from the open terrace is beautiful beyond description, especially at sunset. The golf course is laid out to utilize the natural rolling country and in consequence has many truly "natural holes."

Only very recently has the Aviation School been established. A large hangar, a delightful club-house, and a suitable three-way runway have been made and actual landings of visiting planes is a daily occurrence. Anyone wishing to travel to the meeting in his plane may be assured of proper landing-fields, and housing for himself and plane.



Farmington Country Club.  
Two "Busy" Doctors on the 3rd Green.





Monticello.

Monticello needs very little description; it must be seen to be appreciated. This simple but perfect home of the writer of the Declaration of Independence and Father of the University of Virginia is filled with architectural and mechanical wonders which might today be considered remarkable, even in this, the me-

chanical age. Everyone should visit at least once the home of the Third President of the United States. The buildings and grounds have been reconditioned and partially refurnished by the Thomas Jefferson Memorial Foundation.



Michie Tavern.

Just below Monticello, about half-way down the mountain, is the Michie Tavern. This build-

ing is an original tavern of olden times, which was moved piece by piece twenty miles and re-

built on its present site in identical shape and detail. This old treasure is filled with a remarkable collection of antiques of all sorts and can rival if not outstrip any museum of similar character. By all means visit the Tavern.



Rotunda, University of Virginia.

In view of the fact that all the meetings of the Society will be held on the grounds of the University of Virginia, either in Cabell Hall or the Medical Amphitheatre, it will be unnecessary to enter into a detailed descrip-

tion of the beauties of the lawn or the additions in size and number of the buildings. Outstanding in the recent developments are the new medical buildings, the dormitories and the new academic building.



Cabell Hall, University of Virginia.





Entrance to Medical Buildings and Hospital, University of Virginia.

The dedication of the million and a half dollar Medical Buildings is to be held with appropriate ceremonies on Tuesday, the twenty-second, in the presence of distinguished guests from all medical schools and a host of returning alumni. This function is being arranged with the hope that a large percentage of the medical alumni of the University will renew friendships, both with each other and with their Alma Mater. The buildings will be open for inspection with guides selected from the present students, so that all may have an opportunity of seeing everything from roof to cellar. Improvements in the hospital will also be observed at the same time. All members of the Medical Society of Virginia are cordially invited to attend these ceremonies, whether University Alumni or not.

The scientific clinics and exhibits will be held in the Medical Buildings.

The institution of dormitory space for a larger percentage of the student body is an innovation which is being watched with keenness by all interested in the growing problems of a University which has always been unique in its principles of handling students. The suites for each two students are most luxurious in comparison with the venerable Lawn and Ranges. Poe would hardly have known what to do with such comfort. These buildings will care for about three hundred students.

The Academic Building fills a long felt want as to lecture rooms and meeting halls. The building stands where the old Mallet House used to be and is architecturally in harmony with the surrounding structures.



Dormitories, University of Virginia.



Academic Building, University of Virginia.



Memorial Gymnasium, University of Virginia.

The Memorial Gymnasium is one of the largest and best equipped athletic units in the South and with a trained athletic director in charge, and a newly organized system of fees, etc., a real era in athletic progress seems to be well started.

The football teams will be very active in preparation for the big games of the season and will bear inspection by all.

In brief then, you will have an opportunity

in October to bask in the beauties of as pretty scenery as exists at the most pleasant time of the year, to visit interesting and historical buildings and estates, to improve your mental and physical well-being, and to establish new acquaintances or review old times with old friends. Every doctor in the State of Virginia should plan to be on hand early on Tuesday and should stay longer than Thursday if possible.



## Miscellaneous

### Proposed Amendments to the Constitution and By-Laws of the United States Pharmacopoeial Convention.

The following amendments to the Constitution and By-Laws of the United States Pharmacopoeial Convention are recommended by the Board of Trustees for adoption by the Convention, at Washington, May 13, 1930. Words to be deleted are enclosed in brackets and words to be added are printed in italics:

#### CONSTITUTION

##### ARTICLE II

##### *Membership*

Section 1. The members of the United States Pharmacopoeial Convention, in addition to the incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: Incorporated Medical Colleges, and Medical Schools connected with Incorporated Colleges and Universities; Incorporated Colleges of Pharmacy, and Pharmaceutical Schools connected with Incorporated Universities; *Departments of Incorporated Universities, which Departments are devoted to scientific research in chemistry or in other lines related to chemistry or pharmacy;* Incorporated State Medical Association; Incorporated State Pharmaceutical Associations; the American Medical Association; the American Pharmaceutical Association, the American Chemical Society, the National Association of Retail Druggists, (and) the National Association of Boards of Pharmacy, *and the Federation of State Medical Boards of the United States;* provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

*Medical and Pharmaceutical Associations and Colleges of Medicine and Pharmacy in Hawaii, Porto Rico, the Philippine Islands and in the Republic of Cuba (where the Pharmacopoeia of the United States has been adopted as the official pharmacopoeia) shall likewise be entitled to representation by delegates on the same basis as the other Associations and Colleges mentioned in this Section.*

Section 2. Delegates appointed by the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the Surgeon-General of the United States Public Health Service, the Secretary of Agriculture, the Secretary of Commerce, the Association of Official Agricultural Chemists, the Association of American Dairy, Food and Drug Officials, the National Wholesale Druggists' Association, the National Dental Association, the American Drug Manufacturers' Association, *the American Pharmaceutical Manufacturers' Association, the Federal Wholesale Druggists' Association,* the United States Division of Customs,\* (and the University of Havana), and by the organizations not hereinbefore named which were admitted to representation in the Convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send three delegates to the meetings of this corporation. But no such delegates as are provided for in this article shall be

members until their credentials shall have been examined and acted upon as provided for by the By-Laws. Delegates admitted as members at any decennial meeting shall continue to be members of the United States Pharmacopoeial Convention until their successors shall have been appointed and admitted as delegates to the ensuing Convention and no longer.

\*Note: It being understood that the University of Havana will be included as a part of the representation accorded to the colleges and associations of the Republic of Cuba and that the elimination of the words "and the University of Havana" is recommended only in the event of the adoption of the new amendment to Section 1.

#### BY-LAWS

##### CHAPTER VII

##### *Of the Committees on Credentials and Arrangements*

Article I. The Committee on Credentials (and Arrangements) shall consist of five members and shall be appointed by the President from among the delegates to the decennial meeting, not less than two months before the meeting. *The Chairman of the Board of Trustees shall be a member ex officio of the Committee on Credentials.*

Article II. It shall be their duty to examine carefully the credentials of all delegates. *Credentials issued in blank, leaving the names of the delegates and alternates to be inserted subsequently by other than the regular constituted officers of the appointing associations or institutions, shall not be accepted as meeting the requirements of this Chapter.* Immediately before the meeting of the Convention they shall furnish to the President a roll containing the names of the Incorporators, the Officers of the Convention, the Board of Trustees, the General Committee of Revision and of those delegates whose credentials are unquestioned and approved. They shall also make report to the Convention concerning all credentials which have been questioned, or appear to them to be of doubtful validity.

Article III. (This Committee shall continue in office until their successors are appointed). *The Committee on Arrangements shall consist of five members residing in or convenient to the City of Washington, D. C., and appointed by the President,* and shall be charged with the duty of making the necessary arrangements for holding the said decennial meeting. The President, Secretary and Assistant Secretary of the Convention shall be ex officio members of the Committee.

##### CHAPTER IX

##### *Of Meetings*

Article I. The regular decennial meetings of the Convention shall be held upon the second Tuesday in May every tenth year, as provided in the Constitution and the place of meeting shall be in the City of Washington, D. C., *unless, in case of emergency, the Board of Trustees and officers of the Convention, by joint vote, shall select some other place of meeting and some date within the same year other than the second Tuesday in May.* See Constitution, Article V. Twenty-five members shall constitute a quorum.

Article II. Section 4. Report of the Chairman of the Board of Trustees, the Secretary of the Board of Trustees, (and) the Treasurer of the Convention *and the Chairman of the Committee on Revision.*

Section 5. The reports of the Committees on Credentials and Arrangements shall then be considered.

## Woman's Auxiliary, to the Medical Society of Va.

### "The Auxiliary Idea."

Mrs. Willard Bartlett, St. Louis, Mo., in her report after four and a half years as chairman of Organization of the Woman's Auxiliary of the Missouri State Medical Association, says that "The natural question is: 'What has the Auxiliary accomplished this time?' We would answer that there has been much that is tangible and much more that is intangible. Perhaps the best impression of this would be had from the notes of appreciation received by the various county auxiliaries, usually from the retiring presidents of the local medical societies."

After giving a few excerpts of the recorded activities of various local auxiliaries and of the State Auxiliary, she says:

"As a result of such activities the Auxiliary is developing a broader friendliness among its membership over the State as well as a large group of women who are intelligently interested in and alive to the problems of health and education of Missouri and the Missouri child. We welcome our widened horizon, with all its implications.

"This resumé would not be complete without a word about that which we call The Auxiliary Idea, a thing less tangible, but just as real as this program of specific activities and so attractive there has been no escaping it. It is a recognition of the value of the common bond of friendship in stimulating the spirit of good will as a basis for all undertakings, a principle that has come to be acknowledged as fundamental, even to all future world relations. The Constitution of the Auxiliary has from the beginning embodied this fact, and we are the richer for it. Its most recent public expression has been voiced by Maude Royden, that outstanding Englishwoman, in commenting on the women of our country. She observes in substance, that to the American woman the idea of service is irresistible, but though filled with a desire to serve, she often fails because, born administrator that she is, she does not perceive that organization alone is not enough, and that no permanent good can be achieved unless the spirit of good will is behind all undertaking. With this as our

dominant note for the past four and one-half years, the Auxiliary has been building on a very real foundation."

## The Truth About Medicine

In addition to the articles enumerated in our letter of June 29, the following have been accepted:

Abbott Laboratories  
Viosterol—Abbott.  
Benzol Products Co.  
Neocinchophen—B. P. C.  
D'ck X-Ray Co.  
I-X Barium Meal.  
Parke, Davis & Co.  
Parke, Davis & Co.'s Viosterol.  
E. R. Squibb & Sons  
Viosterol Squibb 100 D.  
Squibb's Viosterol Cod-Liver Oil 5 D.  
Squibb's Viosterol Cod-Liver Oil 5 D Mint-Flavored.  
Terrell's Laboratories  
Rabies Vaccine Phenolized, Terrell.

### NEW AND NON-OFFICIAL REMEDIES

Isarol-Ciba.—Sulphonated Bitumen, N. F.—A preparation obtained by dry distillation of bituminous shale. The distillate is sulphonated with sulphuric acid and subsequently neutralized with ammonium carbonate. The product complies with the standards for sulphonated bitumen, N. F. It has the actions and uses of sulphoichthyolate preparations and substitutes (New and Nonofficial Remedies, 1929, p. 398). (Jour. A. M. A., July 6, 1929, p. 33).

Ampoules of Pitressin.—An aqueous solution containing the pressor and diuretic-antidiuretic principle of the posterior lobe of the pituitary gland (betahypophamine) containing less than 1 unit of oxytocic activity per c.c. It is standardized by the method of Hamilton and Rowe so that each c.c. contains 20 pressor units (1 unit represents the pressor activity exhibited by 0.5 mg. of standard powdered pituitary U. S. P.) This product is used for temporary stimulation of blood pressure, for increasing the muscular activity of the bladder and intestinal tract, also for antidiuretic effect in diabetes insipidus. It is marketed in 1 c.c. ampoules. Parke, Davis & Co., Detroit.

Ampoules of Pitocin.—An aqueous solution containing the oxytocic principle of the posterior lobe of the pituitary gland (alphahypophamine) containing less than 0.5 unit of pressor activity per c.c. It is standardized by the U. S. P. method for pituitary, each c.c. containing 10 International units. This product is used to stimulate uterine contractions for obstetric purposes. It is marketed in 1 c.c. ampoules. Parke, Davis & Co., Detroit. (Jour. A. M. A., July 13, 1929, p. 117).

## Book Announcements

**Methods and Problems of Medical Education.** Thirteenth Series. The Rockefeller Foundation, 61 Broadway, New York, N. Y. 1929. 141 pages. Illustrated. Paper.

**United Fruit Company, Medical Department.** General Office: Boston, Massachusetts. Office of Medical Department: 17 Battery Place, New York City. Seventeenth Annual Report. 1928. 381 pages. Illustrated. Paper.



# Virginia Medical Monthly

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## Editorial

### "As Mere Flourishes."

Recently, William Lyon Phelps, noted editor, has aptly written of an author's book, under review: "There is a charming frankness, a directness and unaffected simplicity . . . that we might well imitate, if we can, in actual life . . . where each speaker assumes that the other is both sincere and interested in the subject: hence there is no necessity for saying a lot of things as mere flourishes or gradients."

It seems that this paragraph points to one of the clear needs of today in medical discussions and medical meetings. Effort even should be made to avoid the vanity of "mere flourishes and gradients," and to speak simply, naturally, and to the point, using a modicum of humility and eschewing the mien of one as possessed of a limitless fund of knowledge, experience and wisdom.

It seems much to be desired that, in the discussion of medical topics, on the medical lecture platform, on the floor of medical meetings, or in the consultation room, medical speakers, avoiding mere flourishes of speech and leaning in matter of discussion toward an unaffected simplicity, should endeavor to present their points of view. For after all, who is it who knows a great deal; who possesses the greatest of wisdom? May we not read and meditate upon the tomes of written medical literature or publications and sit in medical conventions for untold hours and come to the conclusion that while there is enough for all to be immensely proud of in the achievements of our times, there are numberless problems unsolved and that there is much con-

fusion and indirectness in medical publications and discourse, and that there is little place for "mere flourishes and gradients," but a large place for simplicity and frankness if the larger advance in the spread of medical knowledge is to be made.

### The Charlottesville State Meeting.

At Charlottesville, on October 22, 23, and 24, the State Medical Society will hold its annual convention. It is particularly auspicious that the profession of this locality has arranged to house the convention at the University of Virginia and to inaugurate the occasion by ceremonies of dedication of the great new medical building that has so lately been completed there. The comfort of the adequate meeting halls and committee rooms is assured by this arrangement. The great pleasure and profit of attending upon the exercises, listening to the discourses of distinguished invited guests, and inspecting the modern equipment and layout of the modern hospital recently erected at the entrance to the University grounds, make for an assurance of peculiar success in this meeting of the Medical Society of Virginia. Besides these attractions, the prospect of the social gatherings and entertainments during the meeting offer enticements that need no elaboration in these columns.

The usual program of volunteer papers that affords members an opportunity to listen to the reading of papers on medical topics and to participate in the discussion of papers on the floor, gives promise of being of high order.

Hotel accommodations in Charlottesville may be taken to be adequate. But it is advisable, it would seem, that members should provide early reservations for themselves as the indications are that a large attendance will mark this meeting of the Medical Society of Virginia.

Dr. L. T. Royster is General Chairman of the Albermarle County Medical Society Committee. Dr. W. H. Goodwin represents the University of Virginia on this Committee. This joint action of these bodies assures for the members in attendance every arrangement for a successful convention.

### The Medical Society of Virginia of 1823.

There is evidence of the existence and operation of a Medical Society of Virginia that received its charter in 1823. It seems in-

deed a matter of reasonable interest that the present society of medical men in Virginia should have more accurate record of the origin, officers, and history of this early organization. Our Society in its publications only claims a lineal history of sixty years while there is evidence of a charter to the Medical Society of Virginia over one hundred years ago: in 1823. It is desirable that a reasonably earnest and complete search should be made into the archives of Virginia in order to trace the history of this older medical society which must have been the parent society of the one now in existence. A diligent search, by a person versed in the art of genealogic inquiry, may be able to discover the origin of this older medical society. In this story we moderns may at least be given opportunity to do honor to the memory of these fathers in medicine in early Virginia. It is hoped that the Society will see fit to engage the services of a competent person under its History Committee for the purpose of tracing the life history of this early Medical Society of Virginia of 1823.

In this connection our readers will be interested in a notice which appeared under MEDICAL NEWS OF THE PAST in the August issue of the Monthly. The information was secured from a directory of Richmond published in 1852.

### United States Pharmacopoeial Convention of 1930.

On May 13, 1930, the United States Pharmacopoeial Convention will convene in Washington, D. C., to organize, and, then to engage in the work of revision of the United States Pharmacopoeia. This convention meets only once in ten years. The membership of the convention is made up of representatives from certain societies and organizations. These organizations by election or appointment send delegates who serve as members of the United States Pharmacopoeial Convention until their successors shall have been appointed or admitted to the ensuing convention, and no longer.

The Constitution provides that certain medical and kindred organizations shall compose the group of organizations entitled to representation. Amendments to the Constitution and By-Laws of the United States Pharmacopoeial Convention must be first favorably voted upon by the Board of Trustees and pub-

lished in medical and pharmacopoeial journals before they can be considered or adopted by the Convention. The Medical Society of Virginia must designate its delegates at its coming meeting. Our readers, therefore, are requested to read with care the report of the amendments, to be found on page 417 of this Journal, which have been favorably voted upon by the Trustees and which will come up before the next meeting for adoption.

This important instrument of the medical and pharmaceutical professions bears an honorable history that every patriotic member of these allied professions and departments of knowledge should revere and cherish. The story of the history of the United States Pharmacopoeia reaches far into the early years of this Republic but only a meager reference to this notable piece of medical history can be made in this comment. While the first *official* Pharmacopoeia was published in 1820, in 1778 during the American Revolution, there was published at Philadelphia a Pharmacopoeia for the use of the Military Hospital of the United States Army, located at Lititz, Lancaster County, Pennsylvania, under the title: "Repertory of Simple and Efficacious Prescriptions for the Use of the Military Hospital Belonging to the Army of the United States of America. Adapted especially to our present state of need and poverty, which we owe to the ferocious cruelty of the enemy, and to the cruel war brought unexpectedly upon the Fatherland." The author of this historic first pharmacopoeia was William Brown, M. D., of Alexandria, Va., then Surgeon General of the Middle Department of the Army of the American Revolution. Again, prior to the appearance of the first official Pharmacopoeia, in October, 1805, the Massachusetts Medical Society appointed a committee composed of Dr. James Jackson and Dr. John C. Warren to draft a Pharmacopoeia, but this was not published until 1808. This was based upon the Edinburgh Pharmacopoeia. Again, in 1816, physicians and surgeons of New York prepared and published a Pharmacopoeia and this served a useful local use for the next few years.

The first official Pharmacopoeia, with Dr. Lyman Spalding, as chairman, was published in Boston, December 15, 1820. It appeared in both Latin and English and a second printing was made of it in 1828. The first revision



of this work appeared in 1830; the second revision appeared 1842; a convention held in Washington in 1850, issued the third revision in 1851; the fourth revision appeared in 1863; the fifth revision appeared in 1873; the sixth was published in October, 1882; the seventh revision was published in September, 1893; the eighth, the "Eighth Decennial Revision" was ordered by a convention held in Washington, D. C., May 2, 1900. The incorporation of the Convention in the District of Columbia was accomplished July 7, 1900, but the Revision was not published until 1905; the ninth revision appeared in 1916; and the tenth Decennial Revision (U. S. P. T.) became official January 1, 1926; and now, the eleventh revision comes up at the next meeting in Washington on the 13th of May, 1930.

### Death From Diabetic Coma.

Since the coming of insulin, death by coma in diabetes is becoming more and more rare. This is as it should be. As the insulin-dietetic management of this disease becomes more and more generally adopted in practice by the rank and file of the profession, death by coma in diabetes must necessarily become rarer. Because experience has shown it to be true that, in the hands of those who have had opportunity to treat a large number of cases of diabetes in all of the stages and types of the disease and at all ages of life, coma is preventable; further, that if it be present, under adequate, persistent and heroic efforts, death from coma can be prevented. So it is assuming somewhat a state of profession-opinion now-a-days that death by diabetic coma should not occur often and will occur less and less as modern treatment supplants the old. This may be stating the trend of opinion rather strongly, but is made, in order to emphasize a point and to draw a reasonable conclusion from the present state of our knowledge in the management of coma in diabetes. In the category of disease, probably no better example of the advance of internal medicine can be given. The masterful and the miraculous control of this disease is evident to all, as has been shown by the dietary-insulin treatment of diabetes mellitus and its complications, particularly juvenile diabetes and coma—a thousand year old human disease.

Prompt hospitalization of coma patients and of severe diabetic patients generally seems ur-

gent. Patients in a coma may be transported, and should be, rapidly to the hospital where emergency treatments may be instituted and where pathologic examinations of more or less technical nature may be carried out as a guide in emergency and provide a plan for a prolonged treatment of such cases. Of course, with automobile transportation easily available over the country, ready transportation can be had at any time. In the case of coma, insulin and fruit juice administration in the presence of serious coma symptoms may be practiced frequently with little risk either of over-insulin dosage or infection.

Diabetics have a remarkable security in the action of insulin. Few of them appreciate in any real way the importance of insulin and diet. Some diabetics break the diet and discontinue the insulin because of a feeling of a sort of well-being and these quickly may become overpowered with acidosis and coma. While diabetes is a chronic malady, the dreadful complications that accompany it and follow in its train are emphatically acute and dire. Coma, signaling its approach often by indefinite feelings, a sort of illness or sickness, loss of appetite, pain in abdomen, difficult and noisy breathing, mental sluggishness, drowsiness, like a stealthy and sly wolf of the night may slip in upon the self-complacent diabetic, who unwontedly discontinued the insulin and broke away from the rules of diet. The margin of safety of the chronic diabetic from the brink of acute coma is very small and the danger is ever imminent. The situation of acid poisoning and coma in the light of our present knowledge of the use and efficiency of insulin administration demands of the physician a full-time attendance. He cannot leave a diabetic patient in coma. He must keep up a continuous fire upon the enemy-poison. If hospital equipment and hospital aid, such as interns, nurses, and dietitians, are not available and the patient cannot be transported by automobile to these great aids of treatment, the physician, himself, with such local help as possible, must lead the unrelenting attack.

The differences of minor details in the general plan of treatment of diabetic coma are unimportant. The following headline measures usually are adhered to: (1) insulin administration according to the severity of the symptoms; it may be 10 to 40 units every half

hour; intravenously and hypodermically according to severity of symptoms. (2) Water. Dehydration of the patient makes for an aggravation of poison action and relation—water in and through the patient is needed. Water by the mouth may be used if possible, but intravenous and subcutaneous administration of normal saline, under certain conditions, is demanded. (3) Remember the heart. Remember that through the coronary circulation courses the same high blood sugar and acid poisoning. Heart action must be supported—caffeine, sodiobenzoate,  $7\frac{1}{2}$  grains every three to four hours for limited doses, may be given. (4) Diet. Starvation must be stopped. Fruit juices, glucose, and other carbohydrates should be given until ugly symptoms are relieved.

## News Notes

### Our State Meeting in Charlottesville.

The center of all medical activities during the Society meeting in Charlottesville, October 22nd, 23rd and 24th, will be at Cabell Hall, located at the south end of the Lawn at the University. Here will be located the registration booth, the commercial exhibits and the meeting hall for all the scientific papers. The only functions away from Cabell Hall will be the clinics and the scientific exhibits which will both be held in the new medical buildings just a few minutes' walk across the grounds.

The Cafeteria is located almost in front of Cabell Hall, just off the grounds to the west, where wholesome sustenance may be acquired at cost. A number of lunchrooms also can be found at or near the corner.

The meeting places may be closely reached either by street car, automobile or on foot. Sufficient and suitable parking spaces will be arranged for and will be properly supervised. The street car service will be augmented by more cars, so that those desiring to ride on the electric cars can be assured of fairly frequent service.

The necessity of making your hotel reservation early cannot be over-emphasized. The hotels are even now receiving numerous requests for space and have been since July, so that you should get your name in early. Accommodations in private homes and boarding houses will be available and can be arranged

for by writing to Dr. W. D. Macon, Charlottesville, Va.

Club privileges can be arranged for anyone desirous of trying out the new golf course or other attractions at Farmington. Bring your clubs, play in the tournament, and then stay over and see if you can improve on your score.

Owing to the celebration incident to the opening of the new Medical School Buildings at the University of Virginia, on October 22nd, this meeting promises to be of unusual interest. Several noted and excellent speakers have been selected by the University Committee for this event. Following the dedication exercises, the University will give a luncheon to which are invited not only the guests, but also all members of the State Society and the ladies accompanying them.

Tuesday afternoon, from 4:30 to 6 o'clock, there will be medical and surgical clinics in the Medical School Buildings.

That evening, at 8:00 P. M., there will be a joint session of those taking part in the University exercises and the Medical Society of Virginia. Addresses will be made at this time by Dr. J. Bolling Jones, Petersburg, President of the Society; Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service (also a member of the Medical Society of Virginia); and Dr. Charles R. Stockard, of the Cornell Medical School.

In spite of a rather full day for the scientific program on Wednesday the 23rd, time will be taken off at 4:30 P. M. for a barbecue at Farmington Country Club. This is likewise for guests, members and the ladies accompanying them.

A golf tournament will be held on Thursday the 24th.

All round, this is to be a fine meeting and all our members will feel fully repaid in taking time off to attend. Be sure to bring the ladies with you. Once again we urge that you make reservations promptly. The dates are October 22nd, 23rd and 24th.

### Southern Medical Association.

Closely following our own State Society meeting comes the annual sessions of the Southern Medical Association. This year that Association will convene in Miami, Fla., under the presidency of Dr. Thomas W. Moore, of Huntington, W. Va. Following the meeting in Miami, arrangements are being made for



an official S. M. A. trip to Cuba. This should prove a delightful postlude for those who can take an early winter vacation. Mr. C. P. Loran, secretary-manager of the Association, Empire Building, Birmingham, Ala., will gladly supply information about the coming meeting.

### **The American College of Surgeons**

Will hold its annual Clinical Congress in Chicago, October 14th-18th. Headquarters will be at the Stevens Hotel. An intensive program is being planned to make this homecoming event the greatest in the history of the College. The Hospital Standardization Conference will consist of morning and afternoon sessions on Monday to Thursday inclusive. There will be a series of clinical demonstrations given by Drs. George W. Crile, Cleveland; John B. Deaver, Philadelphia; John M. T. Finney, Baltimore; Charles H. Mayo, Rochester, and others. Monday evening's program will include the address of the retiring President, Dr. Franklin H. Martin, Chicago, the inaugural address of the new President, Major-General Merritte W. Ireland, Washington, D. C., and the John B. Murphy Oration in Surgery by Professor D. P. D. Wilkie, of Edinburgh.

Tuesday, Wednesday, and Thursday evening sessions will consist of scientific papers presented by surgeons from the United States, Canada and from abroad. The Annual Convocation of the College will be held on Friday evening. The annual meeting of the Governors and Fellows will be held Thursday afternoon followed by a symposia on cancer and bone sarcoma. An all day session on Traumatic Surgery will be held on Friday in which leaders in industry, labor, indemnity organizations and the medical profession will participate. A special program has been arranged that will be of interest to those whose practice is limited to surgery of the eye, ear, nose and throat.

A feature of the Congress will be the showing of surgical films that have been produced under the supervision and approved by the Board on Medical Motion Pictures of the College. New developments in color photography will be demonstrated. In addition to the commercial exhibits, there will be scientific exhibits by the departments of the College.

A rate of one and one-half the regular one way fare has been granted on railroads of the

United States and Canada to those holding convention certificates.

### **Married.**

Dr. Richard H. Holt, Middleburg, Va., and Miss Mildred A. Derby, Kingston, Md., at Rehoboth, Md., June 20th.

Dr. A. Merle Showalter and Mrs. Charles Craig, both of Christiansburg, Va., in Roanoke, August 11th.

Dr. Fred M. Hodges and Miss Louise Maury Anderson, both of Richmond, Va., September 3rd.

Dr. William Russell Jones and Mrs. Anna Simmons Talley, both of Richmond, Va., August 17th.

Dr. William Linwood Ball and Miss Mary Louise Pamperin, both of Richmond, Va., August 5th. Dr. Ball is an alumnus of the Medical College of Virginia, in the class of '27.

Dr. Luther Rush Lambert, Fairmont, W. Va., of the class of '24, Medical College of Virginia, and Miss Marion Clay Whitman, Wytheville, Va., September 4th.

Dr. Edmund Eugene Robinson, Concord, N. C., and Miss Mildred Eaves, in June. Dr. Robinson graduated from Medical College of Virginia in 1927 and served an internship at Memorial Hospital, Richmond.

Dr. Claude Linwood Neale, of the Walter Reed General Hospital staff, Washington, D. C., and Miss Frances Evelyn Majors, of Dallas, Texas. Dr. Neale was formerly of Saluda, Va., and graduated from Medical College of Virginia in 1928.

Dr. William Albert Graham, Hillsboro, Ky., and Miss Lucy Alston Williams, Warrenton, N. C., August 31. Dr. Graham graduated from Medical College of Virginia last June and was appointed one of the interns at Memorial Hospital, Richmond.

### **Dr. Frank F. Sowers,**

Fairmont, W. Va., of the class of '27, Medical College of Virginia, has been appointed health officer of Marion County, West Virginia, succeeding Dr. Howard M. Batson, also an alumnus of the Medical College of Virginia, who has located in New Mexico. Dr. Sowers took a special course in public health work at the Rockefeller Foundation Training School in Indianola, Miss., before entering upon his new duties on September 1st.

### **Dr. E. L. Kendig,**

Victoria, Va., has been chosen general demo-

cratic chairman of Lunenburg County for the coming election.

**Dr. G. F. Simpson,**

Purcellville, Va., was recently elected a member of the Loudoun County democratic committee.

**Poverty Affects School Work—A German Opinion.**

The poorer the family the poorer in general is the quality of the school work of the children. This is the conclusion reached by a German investigator as the result of a study of about 800 children eleven to fourteen years of age coming from families of moderate or low income and attending public schools in two German cities. About half the children of unskilled workers in the lower school grades and a still larger proportion in the higher grades were found to be retarded. This condition was attributed by the investigator to the prevalence of faulty hygiene, disease, and physical weakness among the poorer families, as well as to inherited lack of ability, which in the parents had kept them in the ranks of the less skilled workers.

**Dr. J. Morrison Hutcheson,**

Of Richmond, Va., delivered an address on "Heart Pains," at the recent meeting of the Northampton County Medical Society, held at the Northampton-Accomac Hospital, Nassawadox, Va. Dr. S. K. Ames and Dr. J. M. Lynch, both of Cape Charles, are president and secretary of the Society, respectively.

**Dr. Emily Gardner,**

Who has been studying in New York, is now at Babies' Hospital, New York City, for several months. Before going off for this special work, Dr. Gardner was with the Child Welfare Department of the Virginia State Board of Health.

**Dr. A. Warren Rucker,**

An alumnus of Vanderbilt University, has recently located at Fieldale, Va.

**Dr. W. B. Dudley,**

Martinsville, Va., is doing post-graduate work in diseases of the eye, ear, nose and throat, in Chicago.

**No Toothache for These Children.**

The children of Sharkey County, Miss., are not to suffer from toothache if the county Red Cross chapter can prevent. This body is sponsoring a school dental clinic, and it has made sure of community cooperation by placing the clinic under the direction of a com-

mittee composed of the school principals, a parent from each community, the county health officer, the Red Cross chapter executive, and the dentist. The physicians of the county are also taking an active interest. About 1,100 children, it is expected, will be treated this year at a total cost of approximately \$1,100. A banner will be awarded to each school as the dental work for the children is completed.

**Virginia T. B. Association to Meet in Roanoke.**

Roanoke has been chosen as the place for the next annual meeting of the Virginia Tuberculosis Association, in February, 1930. The meetings of the Association have always been held in Richmond since its organization in 1909, but at the last annual meeting an invitation to meet in Roanoke was extended by the Roanoke Chamber of Commerce and representatives from that section of the State urged that it be accepted. After some discussion, the matter was left to the decision of the executive committee which recently voted to hold the meeting at Roanoke.

Plans are being made by the Association to secure two speakers for the occasion who have national reputations and are considered authorities on their subjects.

**Dr. Sidney L. Scott,**

Fredericksburg, Va., recently visited Greenwich, Conn., where, at the request of the Robert E. Lee Memorial Foundation, he appeared at a meeting for the purpose of discussing the arranging of illustrated lectures on Stratford (ancestral home of the Lees in Westmoreland County, Va.) and other historic places about Fredericksburg, to be delivered all over the country. Dr. Scott will prepare and deliver the first lecture at Greenwich, after which an employed lecturer will probably take it over.

**The American Society of Clinical Pathologists,**

At its annual meeting in Portland, Ore., in July, elected Dr. Kenneth M. Lynch, Charleston, S. C., president-elect. Dr. James H. Black, Dallas, Texas, succeeded to the presidency and Dr. Harry J. Corper, Denver, Col., continued as secretary-treasurer.

**Utopia Children's House in Harlem.**

Over 1,600 luncheons were served last January to undernourished negro children at Utopia Children's House in Harlem. This child-welfare center was made possible by a gift from John D. Rockefeller, Jr., after the



report of a joint committee on negro child study disclosed the need for it. More than 400 children are registered in the twenty-six activities now carried on at the center.

**Dr. R. D. Kimbrough,**

University, Va., is spending some time at Tucker House, Williamsburg, Va.

**Dr. Gladys Smithwick,**

Of the class of '25, Medical College of Virginia, recently at Oakdale, Ia., is now at Wal-lum Lake, R. I., where she is doing chest work.

**Petersburg Active in Health Matters.**

The report just issued by the Department of Public Health of the City of Petersburg for 1925, 1926, 1927 and 1928, shows a large amount of health work accomplished for a city of slightly less than 38,000. Dr. Robert A. Martin is health officer. Other doctors connected with the Health Department are: Drs. Mason Romaine, C. T. Jones, Geo. H. Reese, W. A. Reese, W. I. Prichard and E. W. Young, while Drs. E. L. McGill, Jos. D. Osborne, L. S. Early and Meade Edmunds render volunteer service.

**Dr. R. A. Vonderlehr,**

Passed Assistant Surgeon of the U. S. Public Health Service, and a member of the Medical Society of Virginia, after a service in Irish Free State and later at Southampton, England, has been transferred to Hamburg, Germany, his address being care the American Consulate in that place.

**Dr. J. L. Blanton,**

Recently located at Fieldale, Va., is taking post-graduate work in pediatrics in Boston.

**Lend Your Vacant Lots for Playgrounds.**

Detroit, Los Angeles, Pittsburgh, Orlando (Fla.,) and Hamilton (Ont.) are among the cities which have public playgrounds on vacant lots lent for the purpose by private individuals or corporations, reports the Playground and Recreation Association of America, New York City. In return for the use of these pieces of ground partial or entire exemption from taxes is granted, a nominal yearly rental being sometimes also paid. In this way the children often have had playgrounds before the cities have been in position to acquire ground for the purpose, and the owners have saved an important part of the cost of carrying vacant land.

**Dr. A. L. Herring,**

Richmond, Va., attending surgeon and part owner of Grace Hospital, announces the re-

moval of his office to 407 West Grace Street, this city.

Dr. T. B. Washington is associated with Dr. Herring and is urologist to Grace Hospital.

**Dr. George W. Booth,**

Recently of Callaway, Va., has located in Ferrum, Va., for the practice of his profession.

**Dr. John B. Bullard**

Has resumed his practice at 1100 West Franklin Street, Richmond, Va., after visiting for the past few months the Bronchial Asthma and Hay-Fever Clinics in Boston, New York City, Philadelphia and Baltimore. Dr. Bullard will be the chief of the Allergic Department at the Medical College of Virginia—a newly organized branch of the Medical Department.

**Los Angeles Summer Health Schools.**

For the fifth year Los Angeles County, Calif., is conducting summer health schools for children of 6 to 11 years who are undernourished or who have been definitely exposed to tuberculosis or other infectious diseases. No child actually ill is admitted, and only those are enrolled whose parents consent to attend weekly conferences. School buildings are used for the purpose, and the children attend for the usual school day. They are under the supervision of nurses, physicians, dietitians, and physical therapists, and their daily program consists of sun baths, supervised recreation, rest periods, and luncheons. Last year 75 per cent of the 500 children who were given this health training were found eight months later to have retained the gains they made. The expense of the health schools is met in part by contributions from fraternal and other organizations.

**Dr. O. E. Bevins,**

Dungannon, Va., suffered a fracture of the left humerus as the result of an automobile accident early in August.

**Prize Offered by American Association for Study of Goiter.**

The Executive Council of the American Association for the Study of Goiter announces that a prize of three hundred dollars (\$300) and a medal of honor will be awarded by the Association to the author of the best essay based upon original research work on any phase of goiter, presented at their annual meeting at Seattle, Wash., in September, 1930.

Competing manuscripts must be in the hands of the Corresponding Secretary, Dr. J. R.

Yung, Rose Dispensary Building, Terre Haute, Ind., by July 4, 1930, so that the award committee will have sufficient time to thoroughly examine all data before making the award.

Full particulars of other regulations governing details of the offer will be furnished on application.

#### **The Southwestern Virginia Medical Society**

Will hold its next semi-annual meeting at Galax, Va., September 16th and 17th, under the presidency of Dr. A. M. Showalter, of Christiansburg. Dr. E. G. Gill, Roanoke, is secretary-treasurer. Dr. John Bell Williams, Business Manager of McGuire Clinic, Richmond, as invited guest, will speak on "A Medley of Methods of Hospital Management." In addition to this, there are scheduled a number of interesting papers by members.

#### **Dr. George H. Reese,**

Petersburg, Va., is home again after a vacation spent visiting in Southern California and later at the Mayo Clinic, Rochester, Minn.

#### **International Congress on Mental Hygiene.**

President Hoover has accepted the honorary presidency of the First International Congress on Mental Hygiene, which will open in Washington, D. C., May 5, 1930. Among the questions to be discussed will be the specific application of mental hygiene to the maladjustment problems of individuals. Special attention will be given to problems of early childhood and adolescence.

#### **Commonwealth Fund Scholarships.**

The Commonwealth Fund of the United States is offering a limited number of scholarships for the course of training in mental-hygiene work being organized at the London School of Economics and Political Science. Lectures will be given in psychiatry, psychology, and social case work, and opportunity for practical work under skilled supervision will be offered at hospitals and clinics, especially the child-guidance clinics. Applicants for the course must be over 25 years of age, must have social-science certificates from a university, and be experienced in some form of social work.

#### **Dr. J. B. Muncy,**

Formerly of Jonesville, Va., has located in Pennington Gap, Va. Dr. Muncy recently returned from Philadelphia, where he spent some months taking post-graduate work in obstet-

rics and gynecology at the University of Pennsylvania Graduate School of Medicine.

#### **The American College of Physical Therapy**

Is to hold its clinical congress and annual meeting in Chicago, November 4-7, 1929, with headquarters at Hotel Sherman. One of the novel features to be inaugurated this year is the clinical part of the program. One-half of each day will be devoted to a variety of clinics in the sections on Medicine, Surgery and allied specialties, and Eye, Ear, Nose and Throat. As in the past, there will also be a joint meeting of all sections for the presentation of numerous addresses of interest to all physicians irrespective of their specialties. Scientific papers, clinical addresses, demonstrations of technique, and scientific and technical exhibits, will comprise the remainder of a scientific program which merits the attention of all those interested in the newer fields of medicine. Attendance at the congress is not limited to the fellows of the College, as all duly licensed physicians, their technicians and assistants, properly sponsored, are cordially invited to attend all the sessions.

Program and other information may be obtained by writing to the Executive Offices, American College of Physical Therapy, Suite 716, 30 N. Michigan Avenue, Chicago, Ill.

#### **Fraternity Memorial Hospital, Tokyo.**

Built and endowed with money left over from the Japanese earthquake relief fund contributed by the people of the United States in 1923 and 1924, the Fraternity Memorial Hospital was dedicated in Tokyo on June 1st. It is probably the finest hospital in Japan. The Japanese committee administering the fund had already used part of the earthquake money to build a small hospital in Yokohama, which was opened in 1928 on the fifth anniversary of the disaster, and to establish a training school for nurses from which 100 Japanese women nurses have been graduated ready for duty in the new hospital. This institution will give free care and treatment to persons recommended for admission by the police and sanitary authorities and by family physicians.

#### **Dr. Fred Y. Ketner,**

Of the class of '28, Medical College of Virginia, having just completed his intern service, has located at Sandston, just outside of Richmond, Va., for the practice of medicine.

#### **Dr. and Mrs. W. C. Caudill**

And son, Pearisburg, Va., narrowly escaped



death a few days ago, when their auto left the road and turned over in Peak Creek on the Lee Highway, just east of Pulaski, Va. They were able to keep just their heads out of water until a wrecking car could be summoned and extricated them. They escaped serious injuries.

#### **The American Dietetic Association**

Will hold its annual meetnig in Detroit, Mich., October 6th-11th, under the presidency of Miss Anna E. Boller, of the Central Free Dispensary of Chicago. Information about this meeting may be obtained from the secretary, Miss Quindara Oliver, 122 Riverway, Suite 20, Boston, Mass.

#### **Dr. and Mrs. Hunter H. McGuire,**

Winchester, Va., have gone to Amsterdam and The Hague, where Dr. McGuire attended the International Congress on Ophthalmology, which was to hold sessions in both places. They will also spend sometime in England before returning home.

#### **The Interstate Post-Graduate Medical Association of North America**

Will meet in Detroit, Mich., October 21st-25th, under the presidency of Dr. John B. Deaver, of Philadelphia. A program including men of international prominence has been arranged. Information about the assembly may be obtained from the managing director, Dr. William B. Peck, Freeport, Ill.

#### **Italy Protects Mothers.**

By a decree of May 13, 1929, the employment of women engaged in manual and clerical work in Italy is prohibited during the last four weeks of pregnancy and for the first four weeks after the birth of the baby. The law also provides that the mother's position must be reserved for her during this period (and for three months longer if longer rest is necessary); it grants a confinement benefit of 150 lire (about \$8), and in the case of women subject to unemployment insurance, including large groups of manual and clerical workers, it grants also a weekly sum equal to the unemployment benefit. The nursing mother on returning to work must be given two special daily rest periods of one hour each until her child is a year old. Fines are prescribed for violations.

#### **Dr. E. T. Trice,**

Richmond, Va., announces removal of his offices to 407 West Grace Street, this city. He is an attending surgeon at Grace Hospital and

will limit his practice to surgery and gynecology.

#### **Tularaemia a Possible Infection in Game Birds.**

The possibility that tularaemia infection might be the causative factor in epidemics that effect native species of game birds in various sections of the United States has been suggested. If tularaemia were so concerned, the matter appears to be one of some importance because of the resultant danger of human infection and as a possible factor in game bird abundance. Results of studies conducted so far by the United States Public Health Service have not been completed. However, it has been shown that quail are susceptible to the infection of tularaemia and that they may suffer from the disease.

Two human cases of tularaemia have been reported (one in North Carolina, the other in Tennessee) which indicate that the source of infection may have been quail. Although these studies are not yet completed, it is of importance that quail as a possibility of a source of infection for tularaemia, be borne in mind.

#### **Dr. Gordon Hastings,**

Of the class of '26, Medical College of Virginia, recently a Field Staff member of the Rockefeller Foundation, has been appointed director of Rural Sanitation for the State of Arkansas, with headquarters in the State Capitol Building, Little Rock. Dr. Hastings interned at Stuart Circle and City Home Hospitals, Richmond, and also served with the U. S. Public Health Service, prior to his graduation in medicine. He was also at Stuart Circle Hospital for a year following his graduation.

#### **Why Sleep? Sleep Helps Children Grow.**

This little folder on sleep issued recently by the United States Children's Bureau calls especial attention to the importance of longer hours of sleep for the adolescent boy and girl, 13 to 15 years of age, than are needed by children a year or two younger. Every one knows the importance of prolonged sleep for babies and young children, which is necessitated by their very rapid growth; but many parents are unaware that the rapid growth and development of adolescence increases the need for sleep, and that children at this period are often listless and unable to concentrate on their lessons simply because they do not get the extra sleep they need.

**"Economic Services of the Metropolitan."**

An interesting brochure which details the major activities of the Metropolitan Life Insurance Company has been published under the title, "Economic Services of the Metropolitan Life Insurance Company." The Service Bureau of that organization, formed to aid holders of Metropolitan policies, has taken full advantage of its strategic position and through many of its activities has proven a definite aid to manufacturing, commerce and finance in the United States, and to the public in general. This report contains many items of interest to business men in every classification.

A copy of it may be obtained by writing to the Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York City.

**Dr. George W. Parson,**

Formerly of Raven, Va., after three years' post-graduate work as a Fellow in the Mayo Foundation, Rochester, Minn., is now located at 906 Medical Arts Building, Kansas City, Mo., where he is associated with Dr. Peter T. Bohan in the practice of internal medicine.

**Dr. Charles C. Haskell,**

After a service of some years at Medical College of Virginia, Richmond, as professor of Physiology and Pharmacology, tendered his resignation, effective July 1st, to undertake research work for the Ciba Company, of New York City. Prior to entering upon his duties there, he made an inspection visit to the home offices of this Company in Europe.

The chair of Physiology at the College will be headed by Dr. W. R. Bond, as assistant professor, and that of Pharmacology by Dr. H. V. Haag, in the same capacity. Both of these men have worked under Dr. Haskell in these departments.

**Dr. Sam Wilson,**

Lynchburg, Va., is spending sometime at Harvard University where he is taking post-graduate work in diseases of children. Upon completing his work there, he will observe methods in pediatrics at Johns Hopkins University before returning home.

**Civil Service Examinations.**

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations, applications to be rated as received until December 30th:

Associate medical officer and assistant medical officer;

Physician and associate physician;

Social worker (psychiatric) and junior social worker.

Further information about these may be obtained from above named Commission.

**Graduate Fortnight.**

The New York Academy of Medicine announces its second annual Graduate Fortnight to be held October 7th to 19th, 1929. Headquarters will be at the New York Academy of Medicine, Fifth Avenue and 103rd Street, New York City, for registration, information and clinical assignments. The profession generally is invited to attend. It is stated that "No fees will be charged for registration or for attendance at any of the clinics or meetings on the program."

The Academy extends a welcome to all members of the medical profession who may visit New York. It offers its facilities in the hope that they may be helpful in making the visitors' stay both pleasant and profitable.

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## Obituary Record

**Dr. Oscar Grant Pearson,**

Of Venter, Va., died at his home in that place, August the 8th., at the age of sixty-one years. Dr. Pearson was a native of Illinois and graduated in Medicine from Rush Medical College, Chicago, in 1891. He located in Virginia about fifteen years ago. He was a member of the Mid-Tidewater Medical Society and of the Medical Society of Virginia. He was also a Mason and Shriner. His wife and two sons survive him.

**Dr. Benjamin Meade Bolton,**

Former Virginian and a graduate in medicine from the University of Virginia in 1879, died at his home in New York City, August the 12th. Dr. Bolton was a prominent bacteriologist and had devoted much of his time to teaching. His wife and three children survive him.





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## THE SURGICAL CONSIDERATION OF THE DYSPEPSIAS CAUSED BY CHRONIC APPENDICITIS AND CHRONIC CHOLECYSTITIS.\*

By  
EDMUND HORGAN, M. D.,  
and  
JOSEPH HORGAN, M. D.,  
Washington, D. C.

Dyspepsia and indigestion, though unscientific terms, are the ones most frequently used by the patient to express the nature of his complaint, for to the lay mind dyspepsia is, regardless of its primary cause, merely a disturbance in the stomach following the intake of food. The causes of dyspepsia are many: the surgeon most commonly encounters it in those forms which have been induced by chronic appendicitis, chronic cholecystitis, duodenal ulcer, gastric ulcer, and gastric carcinoma. These diseases are all characterized by an insidious onset and chronicity. Perhaps the most insidious as well as the most common forms are those induced by chronic appendicitis and chronic cholecystitis. As a relationship between these two has been so frequently noted, we shall discuss them in this paper.

*Etiology.*—The etiology of chronic appendicitis and chronic cholecystitis has not been conclusively established: but Rosenow,<sup>1</sup> by producing these diseases in laboratory animals with streptococci grown from pathological tissue removed at operation and from pus obtained from foci of infection in patients suffering from chronic cholecystitis and chronic appendicitis, has given us the most logical explanation of the streptococcic factor as a cause. The conclusions of Wilkie,<sup>2</sup> based upon his recent bacteriological study of tissues removed at operation in fifty consecutive cases of gall-bladder disease, tend to corroborate Rosenow's results. In this study streptococci were grown in 42 per cent of the cases where cultures were made from tissue removed from the outer and sub-mucous layers of the gall-bladder, leaving the mucosa intact. One of the outstanding features of Wilkie's study was the growing, in 86 per cent of the cases, of streptococci from

lymph glands found lying along the cystic duct and removed at operation. Wilkie found that the bile from the gall-bladder was sterile in the majority of cases and, a most interesting observation, that bile inhibited the growth of the tissue streptococci. He concluded that cholecystitis is a blood-borne, streptococcic, intramural infection. In our own study of sections of the appendix removed at operation from cases of chronic appendicitis, and stained by McCallum's method, we have found streptococci. Other less clearly established etiological factors probably contribute to the cause of these diseases.

*Incidence.*—The incidence of these diseases can be determined only by a careful study of the gall-bladder and the appendix obtained at necropsy from cadavers of patients dying from all causes. Carman, MacCarty, and Camp,<sup>3</sup> in such a study of cholecystic disease, found macroscopic or microscopic evidence of gall-bladder disease in sixty-four out of 100 consecutive necropsies, all performed in one year. Chronic appendicitis is such a common pathologic lesion that in nearly every instance macroscopic or microscopic evidence of it can be found at operation or necropsy. In a series of 320 consecutive necropsies† performed by one of us (E. Horgan) after deaths from various causes and at all ages, evidence of appendicitis was found in 134 instances (41.8 per cent). The appendix was noted to be without pathologic change in 179 instances; in six instances the condition was not noted; and in one there was a congenital absence of the appendix. The pathologic change was chronic in 123 instances and acute in eleven. Of this group ninety were males and forty-four were females.

*Age.*—These diseases occur at all ages but are most frequent in middle life. Eusterman,<sup>4</sup> reviewing a total of 13,500 cases of disease of the gall-bladder, found only 0.85 per cent in the first two decades, about 52 per cent in the third and fourth decades, and 47 per cent beyond the fourth decade; but of the cases

\*Submitted for publication, July 25, 1929.

†Performed at the Mayo Clinic in 1915.

with gall-stones 69 per cent were beyond the fourth decade.

*Sex.*—Of 9,115 cases of gall-stones reviewed by Eusterman, 24 per cent were males and 76 per cent females. The ratio is practically the same in cholecystitis without stones. In 4,987 cases of cholecystitis, 28 per cent were males and 72 per cent females. In 227 cases of chronic appendicitis which we have operated on in the last five years, 38 per cent were males and 62 per cent were females.

#### CHOLECYSTITIS

Chronic cholecystitis appears in every stage from the very mild to the most distressing forms. In the more severe cases the symptoms are clearly marked and the diagnosis becomes correspondingly simple. "Gas and sour stomach" are the symptoms which most frequently disturb the patient; these often have been of long standing, and may have become increasingly constant. They may be of irregular or of almost daily occurrence. The distress may come on during the meal or, as most often happens, shortly after the meal. It is generally more marked after the evening meal and sometimes continues into the night. There seems to be no seasonal variation or periodicity. The patient with cholecystitis usually retains his weight and indulges his appetite until continued discomfort forces him to a rigid diet. He commonly complains that distress comes after taking food that disagrees with him, after an indiscretion in diet, or because of constipation. The patient finds that he may enjoy comparative freedom from discomfort by avoiding certain foods that cause "repeating," and certain other foods that cause "distress." Fried, greasy, or sour foods, salads, and certain meats, such as pork and sometimes lamb and veal, vegetables, such as cabbage, onions, and radishes, and among the fruits, raw apples and bananas, may bring on this qualitative food distress. Gas with belching, bloating of the abdomen, fullness in the epigastrium, and pressure in the lower part of the chest are the chief symptoms. Eructations of sour or hot, burning fluid may accompany the epigastric distress. Nausea, which is common and in some cases very marked, is usually relieved by belching, sometimes by vomiting. Occasionally the patient induces vomiting. Soda gives little relief. Nausea with headache, usually referred to as "biliousness," is not uncommon. The vomiting of blood, or blood in the stools, occurs in cholecystitis only when

there is a marked hepatitis or cirrhosis of the liver. Tenderness in the region of the gall-bladder and along the lower border of the liver may, when present, be found on physical examination.

Chemical examination of the stomach contents is usually made, but its value in diagnosis is chiefly the negative one of determining the absence of gastric or duodenal disease. The Meltzer-Lyons method of biliary drainage has not proved useful as a diagnostic aid because the findings cannot be reliably interpreted in diagnosing any given case. The visualization of the gall-bladder by means of the X-ray, following the intravenous injection of sodium tetra-iodophenolphthalein by the technique of Graham, Cole, and Copher,<sup>5</sup> is giving us aid in diagnosing chronic cholecystitis and cholelithiasis. It is a method, however, which is reliable only when the findings are considered along with the other laboratory findings, a physical examination, and the history of the patient.

Patients having cholelithiasis, besides showing symptoms similar to those of cholecystitis, may have had one or more attacks of colic, followed in some cases by jaundice. These attacks have no definite relation to the eating of food and may occur at any time during the day or night. Sudden pain, so severe that it causes the patient to "double up" and usually requires morphine to relieve him, is characteristic. The pain, lasting from a few minutes to a few hours' starts in the epigastrium, goes through to the back, and radiates to the right shoulder. It goes as suddenly as it comes, but leaves soreness in the muscles of the epigastrium from contraction during the attack, and tenderness if the gall-bladder is distended by a stone becoming impacted in the cystic duct. Rigidity and muscle spasm occur only if an obstructing stone in one of the ducts causes the gall-bladder to become distended with a resulting inflammatory reaction.

#### CHRONIC APPENDICITIS

Chronic appendicitis may simulate cholecystitis, gastric or duodenal ulcer. Epigastric distress is often present and is sometimes accompanied by nausea. This epigastric discomfort may be more or less continuous or may come in "spells," which show no periodicity. The discomfort occurs very irregularly with regard to meals and time of day. The patient gains no relief from taking food or alkalis, although soda may at times relieve him.



Vomiting of blood has been noted occasionally in chronic appendicitis. In diagnosing this condition, chemical laboratory or roentgenological studies have not developed tests or methods that are of much aid. Surgical diagnosis depends upon the history of an indeterminate dyspepsia which may have been preceded by an acute attack of appendicitis or, more commonly, by several mild attacks; and, occasionally, upon tenderness on deep pressure in the region of the appendix.

#### TREATMENT

Every case of chronic appendicitis and chronic cholecystitis has its medical phase. In the earlier stages patients should be given dietary treatment. Such conditions as hypertension, heart, and kidney disease should receive attention and treatment; and, if surgical treatment is instituted, the medical treatment should be continued along with the post-operative care.

Foci of infection, such as alveolar abscesses and infected tonsils, must be searched for in every case; but it is not always wise to treat them immediately in case they are found. These foci should not be disturbed if surgical treatment has been decided on and if the patient is being prepared for operation, as one of the so-called "focal reactions" may follow which will make it necessary to delay the operation. They are best treated at some later time, usually during the period of convalescence.

Often the deciding factor between medical and surgical treatment is the patient's ability to obey faithfully a long and complicated dietary regime. In many cases of cholecystitis the symptoms are so mild that the patient can be relatively comfortable by dietary measures. This may be accomplished in some cases without much difficulty and without rigid diet restrictions. When there is cholecystitis producing nausea, bloating, and epigastric distress after each meal, and when the discomfort of the patient is more or less constant, surgical treatment should be advised.

The patient with chronic appendicitis should be advised to have an operation for the removal of the appendix when he has almost constant epigastric distress or frequent attacks of indigestion with nausea, belching, and vomiting; also, when he has gastric hemorrhage, loss of weight, and anemia; and particularly when he has had previous attacks of appendicitis.

*Surgery.*—In operating for cholecystitis a right rectus incision should be made to allow for an exposure sufficiently large to palpate and inspect the gall-bladder and bile ducts, liver, and pancreas. The pathological conditions in any of these structures are found by (1) inspecting the gall-bladder for change in color, size, shape, and deposit of fat in the gall-bladder wall, (2) inspecting the liver in the region of the gall-bladder for localized cirrhosis, which is commonly found in inflammatory diseases of the gall-bladder, (3) palpating the gall-bladder to ascertain the thickness of the wall and the presence of stones, (4) palpating the hilum of the liver and the ducts for enlarged lymph glands, (5) palpating the head of the pancreas for enlargement and hardness, and (6) palpating the cystic, hepatic, and common ducts for stones. By this procedure, any pathological condition of the biliary tract, gall-bladder, or liver should be demonstrated. Associated pathological conditions are found by examining the stomach, duodenum, spleen, and appendix.

The gall-bladder should be removed for chronic cholecystitis, with or without stones, if the condition of the patient permits. When there have been many acute or subacute attacks producing firm adhesions of the gall-bladder to its neighboring structures, when jaundice is present, and, also, when there are such complicating diseases as nephritis, hepatitis, and myocarditis, a cholecystostomy is advisable because it can be done speedily and with very little trauma. In the presence of these conditions a cholecystostomy might better be made to save the patient's life, even though a cholecystectomy should follow later to give him relief from his symptoms.

The appendix should be inspected and palpated in all cases of gastric and duodenal ulcer, cholecystitis, cholelithiasis, and pancreatitis, and, unless there is a contraindication for it in the condition of the patient, the appendix should be removed. A right paramedian incision should be made in operating for chronic appendicitis. When the abdomen has been opened, the liver, gall-bladder, bile ducts, pancreas, stomach, and duodenum should be examined, as chronic pathological conditions in these tissues are often associated with a chronic condition of the appendix. The presence of chronic appendicitis can be determined by (1) inspecting the appendix for kinks and adhesions, (2) palpating the appen-

dix for concretions and induration in the wall, and (3) inspecting and palpating the mesentery, terminal ileum, and cecum for enlarged inflammatory lymph glands.

As we look upon chronic appendicitis as a chronic infection and a focus from which other tissues may become diseased, we strongly urge the removal of the appendix as soon as the condition is recognized. In this way, we hope we may often prevent a cholecystitis, a duodenal ulcer, or a gastric ulcer. For the same reason, in an operation on a patient who has gastric ulcer, duodenal ulcer, or cholecystitis, the appendix should be removed in order to prevent the occurrence later of one of the other of these diseases.

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1801 Eye Street, Northwest.

## OSTEITIS DEFORMANS—(PAGET'S DISEASE.)

### Report of Case.

By G. W. BROWN, M. D.,  
and  
P. G. HAMLIN, M. D.,  
Williamsburg, Va.

Miss L. W. J., a white female, age seventy-five years, was admitted to the Eastern State Hospital, at Williamsburg, Va., from Gloucester County, Va., on January 1, 1929. Patient is by occupation a school teacher.

The commitment paper stated that her mental illness began on December 1, 1928. The first symptoms noted were wandering, auditory hallucinations, delusions, disorientation and rambling conversation. At this time the patient was destructive of clothing. It is stated that she attempted to injure others, although this is very doubtful. It is further stated that she made imaginary phone calls to heaven.

Mental status: that of rather advanced arterio-sclerosis. The patient is childish, wanders about aimlessly. She is disoriented for persons, time and place.

#### PHYSICAL STATUS ON ADMISSION

*Head and Neck:* Patient is seen to be an elderly white woman, with a head of enormous size. Ears negative. Eyes: No exophthalmos, no nystagmus, no ptosis, no strabismus. Eye ground examined under mydriatic and found to present the usual appearance of an arterio-sclerotic disc.

*Neck:* There is marked prominence of the veins and arteries in a recumbent position and the veins empty normally on going from the recumbent to the upright position.

Head measurements are from glabella to post-occipital protuberance 35 c.m.; mastoid to mastoid over parietal region 40 c.m., circumference at level of brow 64 c.m. There is marked tortuosity and thickening of the temporal vessels.

*Chest:* The chest is flat and markedly contracted in its lateral diameter. The nipple is in the anterior axillary line.

*Heart:* The apex beat of the heart is located by palpation in the sixth interspace anterior axillary line. There is an apical thrill and also a high pitched apical murmur. No changes to percussion or auscultation over the lung fields.

*Abdomen:* The abdomen is negative. There are no tumor masses and no tender points; no palpable viscera.

*Upper Extremities:* Voluntary movements are normal. Tendon reflexes are normally active. Blood pressure on the left arm while in a recumbent position is 160/80. Arterio-sclerosis of the peripheral vessels.

*Lower Extremities:* Voluntary movements are normal. Tendon reflexes normally active. No ankle clonus, no Oppenheim, no Babinski.

*Gait:* The patient walks with the right leg everted and bowed forward, and there is also forward bowing of the left leg, but not so marked as the right. The chin is sunk forward on the sternum. The entire trunk inclines to the left. There is scoliosis and kyphosis of the spine.

*Sensation:* Sensation to heat and cold could not be tested, neither could light touch be tested on account of lack of cooperation. Patient reacts normally to pin prick. The attitude in standing is simian.

#### Laboratory Findings:

Blood sugar 80 mg.

Blood urea 12 mg.

Blood count Hbg. 80 per cent; W. B. C.



8,000; R. B. C. 3,820,000; Pmn. 81; Smn. 14; Lmn. 1; Trans. 4.

Blood Wassermann negative.

*X-ray Findings:* On account of the extreme size of this patient's head and evidence of peripheral arteriosclerosis, it was decided that films should be made of the skull. Patient was very non-cooperative and it was impossible to get stereoscopic films. When the first flat plate was developed, however, a remarkable condition was seen to obtain in the bones of the skull. The appearance was so

is reticulation of the bone in the upper portion of both femurs. There is a marked bowing of the tibia, especially on the left. There is marked sclerosis of the anterior tibial artery in the film.

#### HISTORICAL

Paget reported his first cases in 1877. Altogether he had twenty-three: males were seventeen and females six. Up to 1914, 213 cases had been reported. Hurwitz found only three in 30,000 medical admissions to the Johns



Photos of various positions of patient with Paget's Disease.

remarkable that it was at first thought the patient had moved and blurred the film. She was re-rayed and the same condition of the bones of the skull was noted.

Diagnosis of Paget's disease of the skull was then first entertained, and examination by X-ray of the other bones of the body and further observation of the patient confirmed this diagnosis.

In the films of the skull the thickness of the cranium from outer to inner table appears to be from  $\frac{3}{4}$  to 1 inch. There are areas of increased density, some of which resemble calculi, interspersed with areas which are quite non-opaque to the X-ray. The sella turcica appears both small and deformed. There is a marked change in the lower lumbar vertebrae. The vertebrae are seen to have a white, chalky appearance, and the outlines of the individual vertebrae are quite indistinct. There

Hopkins Hospital and DaCosta the same in 38,000 admissions to the Jefferson Hospital in Philadelphia. On account of the increasing use of the X-ray, more cases are now being reported. E. A. Locke, writing in Oxford Medicine, states that with the exception of syphilis, osteitis deformans is the most common of chronic bone diseases.

*Etiology:* The cause of this condition is not known. Marie, who reports a case with psychosis in a soldier of the French Foreign Legion, seems inclined to attribute the trouble to a disturbance of the hypophysis. This patient showed a manic depressive coloring, as well as epileptiform seizures. In the X-ray study of the case, Marie found a deformed sella turcica. Another theory of the etiology is that the condition is a form of cancer. The relationship between the condition and cancer appears quite close, but the weight of evi-



Film showing changes in bones of skull.

dence would seem to indicate that they exist as contemporaries. Of eight cases traced to the end, five died with cancer or sarcoma. The relationship between it and syphilis was formerly considered quite close, but the X-ray and the Wassermann reaction have since disproven any such connection.

*Age Incidence:* The most frequent ages at which the disease is first observed are between forty and fifty. In one it began at thirty-five and in another at thirty-eight. I am informed that one case was reported at the age of twenty-three, although I did not myself see this reference in the literature.

*Pathology:* Paget complained that the disease had been given various names. Some of these were as follows: hyperostosis, osteoporosis and senile rachitis. He expressed the hope that it would be recognized as a pathological entity. The X-ray has contributed a great deal to our knowledge of the pathology. The pathology is concerned with the bony frame work of the body. According to Locke, the nature of the process is now accepted as a double one: first, a lacunar absorption of bone by osteoclasts (Askanazy); second, the formation of new

"fibro-osteoid" tissue, which may at first be poor in lime salts and late in the disease become sclerotic. In other words, there is a double process of rarefaction (malacia) and new bone formation essentially of connective tissue origin. As Rapp states, the X-ray appearance of this disease is first a rarefaction which may simulate a cystic condition and which has been described as a transparency of the cortical bone. This is later replaced by a great reticulation which on post-mortem examination is found to be due to a spongy bony framework, the interstices of which are filled with a soft tissue, with practically no calcium.

*Symptomatology:* Paget's original case began with aching in the legs. This was felt chiefly after exercise. Pain was never severe. This patient was not seen until about two years after the condition started. About three years after the onset, the man thought that the right side of his skull was enlarged because his hats did not fit him. He was a member of the yeomanry and he noted that his military helmet had to be enlarged each year. Paget describes his attitude in standing as simian. (This simian attitude is striking in our case).



Film showing changes in sternum.





Film showing bony changes in pelvis.

One marked feature of this condition is that there is an enormous enlargement of the skull, the features meanwhile remaining normal. This is in marked contrast to acromegaly, in which there is universal enlargement of the features, as well as the bony part of the head. There is frequently a bowing forward of the tibiae and femora. There is often scoliosis and kyphosis in the spine. The enormous size of the head is due to the increase in thickness of the skull. The patient characteristically walks with a bowed head. There may be pressure on the cranial nerves and blindness. Four of Paget's cases became blind. As Paget observes, the large head is in contrast with the features of normal size, or even intellectual or handsome.

In most cases the symptoms are attributed to advancing age and the patients seldom seek advice unless driven to do so by pain or disability. Cases formerly diagnosed as ethmoiditis or various neuralgias, by the use of the roentgen ray are frequently shown to be Paget's.

**Diagnosis:** The diagnosis is made by means of X-ray. According to Carman, the X-ray findings in the skull are pathognomonic.

The bones usually affected are tibiae, femora, clavicles, spine and vault of the skull.

**Treatment:** There is no treatment other than symptomatic for this condition. Rapp has suggested that diathermy may be of value. Apparently this has not been adequately tried. The diagnosis is important to prevent unwarranted surgical interference and to differentiate from other conditions.

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Film showing moderate bowing of right tibia.

## POTTER'S VERSION—A FURTHER CONSIDERATION.\*

By ROBERT P. KELLY, M. D., F. A. C. S., Lynchburg, Va.

Some years ago Dr. Irving W. Potter, of Buffalo, startled the world by his claims for a "new method" of delivery which would alleviate the pains and agonies of child-birth, making the ordeal of labor less dreadful to women, reduce infant and maternal morbidity and mortality, shorten labor by eliminating the second stage and enable the obstetrician to do more work and have more time for rest and recreation.

As is usually the case with innovations and fads, the claims of the Buffalo doctor attracted much attention. Many physicians from all parts of the United States and Canada flocked to Buffalo to see this marvelous man and to learn, first-hand, of his wonderful accomplishments. The news of his great achievements spread like wild-fire, the medical journals teemed with articles for and against his method. In almost every maternity hospital in the land Potter and his method became the chief topic of conversation, and no other obstetrician was considered completely educated who had not seen him at work.

Strange, and sad too, to relate, many came away quite favorably impressed with Potter and his teachings, though others were not yet prepared to accept this "new method" as the greatest obstetrical improvement of the age. A few, however, returned home disappointed and disapproving.

It was my privilege to see the work of this famous man. I observed him closely for several days. He is big, strong, skilful in his method and seemingly honest in his convictions that, so far as he is concerned, his method of delivery is better than any other. Yet, in my opinion, he is entirely wrong; he loses many babies, but that seems not to deter him. he continues to flirt with nature as if nothing had happened. I say this because I saw him lose one baby and barely escape the loss of another, both situations having been created by his unnecessary method of delivery—version.

In justice to him, it is only fair to state that he has probably taught us a better method of version and extraction than we learned as medical students. He has taught us that we need not hurry so with our extractions, that failure

to complete the delivery within eight minutes will not be fatal to the baby. This is the extent of the praise I can render him.

What has he done, however, in order to attain to this end? He has lost, and caused to be lost by his teachings, many babies that should have been born alive. He has injured many more. His influence for bad has been so extensive that, at present, there are practically in every part of the United States, physicians who are delivering babies by his method and who are, as a result, increasing the infant and maternal morbidity and mortality to such a degree that it is doubtful if the conditions can soon be overcome, even by the steadily increasing number of trained and conservative obstetricians throughout the country.

Some men who have visited Potter for a week and who have had no special training, have returned to their homes full-fledged obstetricians, and have gone about practicing his method of delivery, losing and injuring mothers and babies to an even greater extent than does Potter himself; yet, in their respective localities they are often lauded by some of their fellow practitioners and held in the highest esteem simply because they can do a Potter version without losing more than from 7 to 15 per cent of the babies.

I have done a number of Potter versions, some two hundred I should say. I visited Potter in June, 1921, returning home somewhat enthusiastic, somewhat disgusted. Shortly after reaching home I had a case in which version was definitely indicated (prolapsed arm). The patient was a multipara who had lost her perineum on some former similar occasion. The delivery was easy and I was greatly pleased with the results of my first Potter version. I decided that in the future when version was indicated I would use Potter's method. Subsequently, I very carefully selected from my patients a number of multiparae and a few primiparae on whom I felt reasonably sure, as the result of careful pelvic measurements and estimation of the baby's size, that I could perform successfully a Potter version. Notwithstanding the fact that my cases were thus selected, except those with definite indications for version, I had too much morbidity to be very happy. My idea was to test this method thoroughly before expressing an opinion. After practicing Potter's method for several years, not as routine but in selected

\*Read before the meeting of the South Piedmont Medical Society, at Lynchburg, Va., April 19, 1927.



cases, as stated. I was fortunate enough to work for six months with Dr. Jos. B. DeLee and his associates, at the Chicago Lying-in Hospital and Dispensary. DeLee refuses to allow Potter to do a version in that institution, and makes in a letter to me, dated March 12, 1927, the following statement:\* "Naturally I know a great deal about Potter's work. It has always appealed to me as being thoroughly unscientific and dangerous, dangerous not alone in Potter's hands but particularly for the general practitioner. The mortality which Potter himself admits is twice as high as the mortality here at the hospital, and it means that a large number of babies are being killed annually for no good purpose whatever. I am sure that Potterism contributes, in a large measure, to the maintenance of the present high fetal and maternal mortality in the United States."

Dr. J. Whitridge Williams writes me as follows: "Every one who visits Potter with a critical mind comes away pretty well disgusted with him. For example, I had with me for a number of years, a very keen Chinese assistant. He spent two weeks with Potter and kept a careful journal of everything he saw, and, when summarizing his experience, he stated that during the two weeks' stay, Potter lost more babies than he admitted in his statement for the entire year. I understand that unless the baby is born dead he assumes no responsibility for its death, and he does this with a relatively clear conscience by immediately transferring the baby to the care of a pediatrician, who, in case it dies, fills out the death certificate and takes the responsibility of death upon his shoulders."

In a letter of April 9, 1927, Dr. John Osborn Polak has the following to say: "I still maintain, and I think all obstetricians admit, that Potter is an artist in doing his versions; that he has perfected a perfect technique for extraction, and, by following it in detail in breech deliveries, many babies that were previously lost may be saved, but version, as an elective operation, to shorten the second stage of labor, is not justifiable when we have at hand methods to relieve the pain of a short second stage which do not harm either mother or child. If Dr. Potter could show us how to shorten the first stage, I think that he might

have more followers among the better men. The midwives in Newark have less than 2 per cent fetal mortality, and there are numberless series of a thousand cases with less than 4 per cent still-births and fetal mortalities, without putting the mother to any increased danger, so that, personally, I do not feel that the indications for a Potter version have a leg to stand on; and his teachings have caused a very large increase in operative interference and in both the mortality and morbidity of the mothers. If the expert only, who has done two or three thousand versions, adopted this method it wouldn't be so bad, but it is the mother who pays the cost while the surgeon is getting his experience. I am teaching Potter's version wherever version is indicated, but it is not indicated 920 times in 1,100 confinements."

When we are forced to do a version and lose the child as the result, we feel that we have done no wrong, but, on the other hand, when we elect to do a version without an indication and lose the baby, we should feel that we are directly responsible for its death.

There are many reasons why we should oppose Potter's method of delivery. It was never intended that babies should be born feet first. Such a delivery, *per se*, gives a much higher morbidity and mortality, even in the hands of trained and experienced men, while a breech case is always looked upon as unfavorable, especially in a primipara.

It is absolutely impossible to do versions as Potter does them without putting the hand in the uterus, which, we must admit, greatly increases the probability of infection, regardless of what Potter and others may claim to the contrary. In fact, the danger of infection is in direct proportion to the number of vaginal examinations and intra-uterine manipulations. No one can deny this statement, for it has been demonstrated. Therefore, the danger is increased when we invade the uterus. If this were not true, why should the best authorities insist on rectal examinations in the conduct of confinements? In some of our maternity hospitals vaginal examinations are strictly forbidden except by special permission and then only in the presence of unusual conditions.

In doing Potter versions the injury to both mother and baby must, of necessity, be markedly increased. The mother's cervix and perineum are more frequently lacerated and the

\*This letter and those following are quoted with the permission of the writers.

uterus is more often ruptured. The baby suffers from fracture of the long bones, especially the arms and clavicle; also from spinal and cerebral injury, with their ultimate effects of paralysis and epilepsy.

The practice is also bad on account of the fact that the influence of those patients who escape, apparently unharmed and without any *present* ill effects, are advocates of the method, and are instrumental in sending others to be subjected to the same dangers, but perhaps not always with even as good results.

If it were possible—unfortunately it is not—thoroughly to educate and instruct the mothers along this line, to make them realize the great danger to themselves and their babies from such ruthless methods of delivery, there would not be one, I venture to say, who would not be perfectly willing to suffer the small amount of pain now necessary for a safe delivery. Nor does the patient, if she is in the hands of a competent obstetrician, with our present means of relieving pain, suffer much more, if any, under conservative methods than under the Potter version.

Most of the pain in labor is during the first stage, and in the case of multiparae the second stage is often very short, sometimes not over five minutes. Likewise, the second stage in many primiparae is very short, and we can make the second stage in either case practically painless by the use of various anesthetics now available. Granted that this is true, and being certain that it is decidedly safer for all concerned, why should ever an elective Potter version be done?

On November 22, 1921, in Danville, Va., I read a paper on "Bags and Version, Indications and Contra-indications," in which I made the following statement: "Version is contra-indicated as a routine method of delivery, proof of which is seen in the statistics (admitted) of one who is more skilled in its technique and who has performed more versions than any other man—Dr. Irving W. Potter." I would like to add, in this connection, that I am *positive* that the use of *bags, followed by version*, definitely increases the infant and maternal morbidity and mortality, above that which is due to versions *alone*, as was brought out in the same paper, which was published in the VIRGINIA MEDICAL MONTHLY, March, 1922.

It is a fact that in many cases in which bags are used to dilate the cervix, the latter is

lacerated by the bag itself, if not by the version. I have noticed this in cases in which it has been necessary to induce labor by means of a bag, especially when the largest bag has been used and very much weight applied, and when the labor has been allowed to proceed otherwise without interference of any sort.

It is my opinion that some men are doing these versions simply to add to their fame as obstetricians, to be advertised, to attract attention of the profession and to draw patients, though I feel that a few men, due to lack of knowledge of the dangers, are more or less conscientious in advocating Potterism. As far as results are concerned, one is as bad as the other, but I do sympathize with the latter more than the former, since there is some hope for the conscientious man. Time may show him the error of his way.

I do not believe that a *well trained* obstetrician in the United States, or any other place, is doing, or will ever do Potter's version as a *routine* method of delivery. I think the more a man knows about obstetrics the more he opposes Potterism, and I feel that we should use our influence to combat such unwarranted teaching and practice. I am certain that much harm has already been done by Potter and his disciples, and that many physicians throughout the country have been made to believe that such a method of delivery is the greatest advance in obstetrics in the past twenty years. As a proof of the contrary, there is not a *real obstetrician* in the United States who does not oppose Potterism.

I fear that we are not fighting this thing as we should, not so much on account of the difference of opinion as on account of the deaths caused by this method. We fight disease because it causes death; then let us fight Potterism for the same reason, for no doubt it is the cause directly or indirectly of more deaths than many of the diseases we constantly combat.

In traveling over various parts of the state, I have been frequently asked the question: "Do you know about this *new method* of delivery?" This question has been asked me by both doctors and laymen, as if there were some mystery about it. Probably to them it is a mystery, but I wish to use this opportunity to tell them that there is no trick to it. It merely consists in doing version after dilatation is complete, or nearly complete; or, it con-



sists in putting a bag in the cervix at an appointed time and doing version as soon as the bag passes through the cervix.

The former is known as Potter's version. Potter does not use or believe in the use of bags, but allows his patients to go into labor naturally and dilate naturally. I do not know to whom to *charge* the combination of "bags and version," but it is much worse than Potterism. When large amounts of morphine and scopolamine are used before putting in the bag and while it is still in utero, the danger to the baby is further increased, though the writer uses moderate amounts in labors, especially in primiparae.

As stated before, there is no trick about all this; any doctor can do it and save *some* of the babies and *most* of the mothers. You don't even have to be an obstetrician to do it, and you are not an obstetrician because you can do it.

My reason for writing this paper is that I have never seen an article in the VIRGINIA MEDICAL MONTHLY in opposition to this method except the one I wrote in 1921, while there have been several publications in this Journal favoring it. Also, I feel it my duty to do all in my power to overcome the bad effects of such teaching, and to take this means of informing the general practitioners throughout the state who have not had an opportunity to get at the bottom of this thing, that there are two sides to the question and that Potterism is an extremely dangerous practice.

If I were not convinced of this, why shouldn't I deliver my cases by this method? I am thoroughly familiar with the process. I could get advertisement, attracting thereby more patients. I could save time, too; but, my fellow practitioners, I value the lives of mothers and babies higher than my time.

Let me say, in conclusion, that I wish to attach little blame to those men who *conscientiously* favor and practice this method of delivery, but I urge them to return to the altar of conservatism, confess their sins and use their influence against this or any other method which increases infant and maternal morbidity and mortality. I still maintain that the only way to get the best results in obstetrics is never to do anything without a definite indication.

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## BRONCHIAL OBSTRUCTION.\*

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As a result of bronchial obstruction, we get certain physical signs which are more or less dependent on the following factors:

(a) Type of obstructing agent, such as a mineral or vegetable foreign body, mucous plug, or neoplasm.

(b) Location and degree of obstruction.

(c) Duration of obstruction.

The three types of obstruction most commonly encountered are:



Fig. 1.—A normal lung injected with lipiodol to outline the left bronchial tree.

(1) Partial obstruction to ingress and egress of air, in which the physical signs may vary from diminished expansion to those of advanced pulmonary suppuration and bronchiectasis.

(2) Expiratory check valve obstruction. Here we usually find marked limitation of expansion, as a result of the obstructive emphysema, the heart and mediastinal structure being pushed over to the opposite or sound

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side, simulating a pneumothorax. The mechanism of this confusing picture has been well shown by Jackson as due to the normal bronchial movements of dilatation and expansion, in which air passes by the obstruction on inspiratory dilatation but is unable to escape during the expiratory contraction, at which time the obstruction tightly corks the bronchus and traps the air.

(3) Complete obstruction. The air in the occluded lung is soon absorbed and atelectasis ensues, after which the air spaces become filled with secretion and the condition of drowned lung, so aptly named by Chevalier Jackson, is found.

In this condition there is a compensatory emphysema of the opposite or sound lung, and

the heart and mediastinal structures are drawn over to the affected side.

This condition simulates an empyema; however if this condition has been present for a long period the picture may simulate advanced tuberculosis.

The physical signs produced under these varied conditions will naturally vary widely according to the above factors. However, there are two which are practically always present:

(1) Lagging of either chest wall or diaphragm as shown on inspection or fluoroscopy.

(2) An asthmatoïd wheeze.

The X-ray furnishes the best source of information in these cases as the following pictures illustrative of the various types of obstruction will show. However, a careful physical examination is essential, for in some cases no evidence can be obtained on X-ray examination.



Fig. 2.—Partial obstruction type 1. Boy, eighteen years, whistle in left bronchus, one week. Only symptoms were hemoptysis and cough; only physical sign was a slight lagging of the left chest wall.



Fig. 3.—Partial obstruction type 1. Boy, six years, grain corn in right bronchus, 12 hours. X-ray entirely negative; physical signs were: marked asthmatoïd wheeze, lagging right chest wall, diminished breath sounds over right lower and middle lobes, and diffuse moist rales over both lungs.





Fig. 4.—Complete obstruction type 3. Boy, four years, grain corn in left bronchus, one day. Presented lagging left chest wall and marked dullness on percussion. This condition of drowned lung rapidly cleared after removal of foreign body.



Fig. 6.—Complete obstruction, type 3. Girl, three years, peanut in left bronchus, 2 months. Physical signs were marked lagging left chest, mediastinal structures to left, marked dullness on percussion from apex to 4th rib in front and M. S. R. in back, dull tympany below; no rales; emphysema right.



Fig. 5.—Expiratory check valve, type 2. Girl, one year, portion coffee bean in right bronchus, 1 day. Physical signs were: marked lagging right chest and wheezing, displacement mediastinal structures to left, and signs of emphysema.



Fig. 7.—Same patient two days after removal of foreign body.



Fig. 8.—Same patient showing left lung perfectly clear 10 days after removal.



Fig. 10.—Same two days after bronchoscopy, showing lung to be clear.



Fig. 9.—Complete obstruction, type 3. Baby, three months, massive collapse left lung, due to mucous plug, dyspnoea 1 day. Physical signs were lagging left chest wall, dullness apex to 6 spine, moist rales on right.



Fig. 11.—Complete obstruction, type 3. Baby sixteen months, watermelon rind in right lower lobe, nine days, with lung suppuration. Physical signs were lagging right chest wall, dullness 4th rib to base, moist rales and wheezing.





Fig. 12.—Showing advanced pulmonary suppuration and bronchiectasis as a result of inspiration of a peanut 30 years ago.

#### SUMMARY

(1) The most constant physical signs were lagging of either chest wall and an asthmatoïd wheeze.

(2) Cases of bronchial obstruction often simulate pneumothorax, empyema or tuberculosis, on physical examination.

(3) The pictures show the various types of pathological pictures encountered in these cases from clear lung tissue to advanced pulmonary suppuration and bronchiectasis.

(4) For a more complete study of the physical signs of bronchial obstruction the works of Chevalier Jackson and McCrae should be consulted. However, it is hoped that this brief summary will be of some help in the diagnosis of these cases.

#### DIAGNOSTIC PROBLEMS PECULIAR TO PEDIATRICS, WITH SPECIAL REFERENCE TO CHILD-PARENT PSYCHOLOGY.—CITATION OF ILLUSTRATIVE CASES.\*

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The subject of this paper implies a vastness that would be overwhelming should we have

for our object the development of its full connotation. In fact, the title might well cause much distress to any conscientious lexicographer engaged in indexing, should he not herewith be apprised that the fulfillment of our purpose shall be in the setting forth of such special situations incident to the making of a diagnosis as have impressed us as being worthy of note in our contact with children. It is hoped, without being too verbose, that a cross-section of a portion of our experience with children and parents in the Public Schools, Infant Welfare Stations, Orphanages, Dispensaries, and in private practice, a field representing strata of most diverse social and intellectual planes, might be drawn upon in the development of our topic.

The procedure necessary in gaining data concerning the child, from which a conclusion as to his physical potentialities may be reached, involves first: the making of the initial contact. This would be interpreted to mean the gaining of the good will of the child and thus his cooperation, if this is at all possible, together with the approbation and support of the parents, grandparents; yes, and as often is the case, the uncles, aunts and cousins. Secondly: the eliciting of significant facts concerning the child's antecedents and events in his own life from birth to date. Thirdly: a thoroughly complete physical examination with a record of data from clinical laboratory examinations. Fourth: the correlating and evaluating of all data previously obtained, with discovery of cause and effect relationships, and finally, the recording of what may not be worthy of a more dignified term than IMPRESSION.

The making of the initial contact, the mode of approach, the gaining of the child's confidence, or what you will, transcends in importance any analogous procedure in work with adults. In fact, with adults very little is necessary except the manifestation of interest on the part of the physician. In words of the commercial world, the adult is sold on the idea of the examination. This, of course, is often far, far from true in the instance of the child. In developing a mode of procedure for this important step toward diagnosis, the following special situations should be recognized: First: The psychological attitude of the average normal parent must be understood. There is a marked degree of centering of in-

\*Read before the George Washington University Medical Society.

terest on the part of the parent, in so far as his child is concerned. His child is the only thing that counts, especially when ill. The other relatives share this attitude in varying degrees.

The child psychologically lives in a world far removed from the adult. His is a world of make-believe and imagery. His tractability will vary with his age and his previous training. The parent who manifestly believes his child a paragon and who unknowingly caters to his own selfish desires by yielding to the child in most everything does not assist in developing the trait of tractability, although by his action he may bring out in the child an individuality of a sort. The household ruled by the youngest child is readily recognized. The parent who as a matter of personal convenience makes a bugaboo out of the physician still exists. A moment's reflection will show what slim chance the newly adopted physician would have ordinarily on his first visit, of escaping a squall, when a stormy scene has preceded his visit and for some breach of discipline the child is told that "the Doctor is going to come to get him for being a bad boy."

How shall we apply this knowledge to gain our objective? First and foremost, the child's name should be promptly learned. He should be ever referred to as "George," "Thomas," or even "Reginald;" never as "Tom," or "Reggie," unless it is seen that the latter are not objectionable. Never should the child or baby be referred to as "IT." A French professor once called my attention to this atrocity which, of course, could never happen in the French language. Remember, always, that the parent is interested essentially in his child, not someone else's child, nor even your own. Never mention, then, the other child in the presence of the parent unless he himself directs the conversation in that direction. The child old enough to know better, it would seem, does much on occasions to bring about loss of poise on the part of the examining physician. Exhibition of anger is fatal. It might be added, parenthetically, that conquering the difficult is always alluring. We can recall some exceedingly bad actors who are now tractile and friendly, and then, again, a minority who were never conquered. The child referred to in the preceding paragraph has, through aiding and abetting by the parent, gained an idea of his

own importance far, far in excess of his proper rating; at the slightest discomfort he is overwhelmed with sorrow and concern for himself. The presence of his parent in the room, who is the very embodiment of over-concern, lends encouragement to that acme of unhappiness, self-pity. The tactful removal of the presence of this type of parent frequently brings about an atmosphere of quietude conducive to better cerebration. Aptitude to gain the child's viewpoint, and consequently his good will, is a variable factor among physicians, and we might say people. A willingness to meet the child on his own plane, talking to him about his most cherished toy, which, by the way, is usually the one that shows the most wear and is nearest to the crib, does much towards making an advance. The production from the depths of the bag, the very bag that the child has been eyeing with awe and which he in his fancy has already pictured as containing many objects of torture, of a mechanical puppet will do much toward making "Junior" decide the Doctor is really a good fellow. To gain a comradeship, the physician must be sincere and free from guile. A child promptly recognizes deceit and gives it its just due. If the physician cannot accommodate himself to these situations, he should refrain from attempting work with children. If through force of circumstances he finds himself where he must carry-on, use the words of the poet as an invocation, "Make me a child again, just for tonight." It must be remembered that he who gains the child's regard and respect has a valued possession well worthy of the time and energy necessary for its gaining.

In referring to the gathering of facts pertinent to the child's history, it must be remarked that the span of life has been short; consequently, two generations, sometimes representatives of three, immediately preceding the child may be present for interview and observation. This, indeed, is an opportunity rarely afforded in the case of an adult. One often is impressed with the truth contained in the statement, "to modify the physical and mental characteristics of the child, it would be necessary to have selected different grandparents." In passing, the absurdity of expecting a child resulting from a parentage essentially of hyposthenic build, i. e., of the long chest, narrow subcostal angle, elongated thin



extremities, to obtain a gold star at a school where the height, weight, age ratio is checked against the standard, is immediately apparent. On the other hand, there is the child to be examined who has no parents available for interview and there is no one to tell about his immediate antecedents. In this case the adult examination is relatively easier, for the adult usually speaks well for himself. With this child, one may read much of his past from his facial expression and his demeanor. When obtainable, date of birth, weight at birth, difficulties of birth, are recorded. The length of breast feeding, the reason for discontinuance, the type of diet up to the present, are especially important; also, the condition of nutrition, any illness or indisposition, no matter how slight, which has preceded must be inquired into; finally, the chronological events relating to the present illness. It is well to let the child talk, telling in his own words of his pain and any other discomforts. It is also well to get the history from the mother—not in the presence of the child. The physician's ears should not be closed to anyone in the household who desires to give information. All should be recorded for final analysis.

The physical examination of the little subject should be thorough and systematic, regardless of success or failure in our attempt previously to gain the confidence and cooperation of the child. Actual restraint with a well applied sheet is required for portions of the examination in the infant and the obstreperous older child. In general, it might be said as to the order of procedure in making the examination, that the examination of the throat, which on no visit should be neglected, may well be made last. If the crying is loud and vociferous, however, the well opened mouth may be taken advantage of at any time, the state of dentition, the mucous membrane of the mouth and appearance of tongue with the odor of the breath and condition of vocal cords estimated at the same time. The degree of consciousness, condition of the fontanelles, the presence or absence of rash, the presence or absence of adenopathy, the condition of nutrition, i. e., weight, height, the prominence of abdomen, any rigidity or spasm of muscles, any evident pain on active or passive movement of a limb, the type of bony structure, should be recorded. The color of the conjunctivae, the size of the pupils, condition of

the fundi, the presence or absence of nasal discharge, any blood or odor, should also be noted. The external auditory meatus and canal, the examination of the membrani tympani, and, finally, a rectal examination, all must be subject for our data sheet. The macroscopic character of the stool cannot be neglected. Now, as to our observations on the technique of the above procedures. The examination in a child of the fauces, pharynx and tonsils can sometimes be done well without a tongue depressor or a "tick," as one of my recent little patients seemed to fear and talk of so much. A good light, which should be always carried by the physician, is essential. This light is thrown into the mouth with the tongue well protruded; an inhalation made through the mouth assists. Throat cultures must be taken. Here one may also help his work by understanding child psychology. Telling the child exactly what is going to be done and demonstrating the softness of the cotton swab is required. Where a number of children are to be cultured, careful selection of the one who seems most phlegmatic as the leader, the one least phlegmatic for last seems of much help. Recently I was much pleased when culturing a small group selected from a larger group of five year old runabouts to have those not wanted to fall in line and hopefully look forward to their own culturing. Another point in facilitating the taking of throat cultures is to have the child, if over seven, (if under, his parent or any other individual handy) to extend their fingers with the palms of the hands toward the ground. An ideal test tube rack is thus formed. The tube is slid in between fingers, cotton plug between others. One hand holds the media, the other the tube container of swabs. This gives the child, or the parent, something to do, a diverting concentration. A urinalysis and a red, white, Hb. estimation, with a differential, must be routine. Spinal fluid examinations, Wassermann and other laboratory tests are performed as indicated.

In the evaluation of data gained and carefully recorded, it is necessary to have a working knowledge of the symptoms of certain disease entities, especially of those diseases likely to attack the child. The vagaries of signs and symptoms obtained in examination of the child as contradistinguished from the adult must be understood. Finally, on the ability of the ex-

aminer, on the one hand, to bring by the process of elimination, from a vast array of symptoms and other information a correspondence to a known disease entity and, on the other, an ability to interpret physical signs directly in terms of pathology, hinges success or failure. It is entirely beyond the scope of this paper to even name all of the conditions and diseases having a specially high incidence in childhood, but we feel constrained to give outlines of a few pertinent cases, about which our experience reveals there exists some confusion at times in their recognition. The vagaries of the signs and symptoms and their interpretation:—Pain in abdomen is often complained of when the child has a sore throat, as pointed out by Bremmermann and others; pain in the abdomen notoriously accompanies pleurisy or pneumonia.

In evaluating physical signs<sup>1</sup> elicited from chest, it is well to bear in mind the gross difference of the child's thorax from that of an adult with the resultant evaluation of physical findings:

Inspection.—Except for general estimation of patient's condition and notation of respiratory rate and character, this is of little value as an early aid.

Palpation.—Tactile fremitus is of doubtful assistance.

Percussion.—In early infancy this is not of great value, as a change of note may often be developed by turning the head from side to side and so putting muscles on stretch. When actual impairment occurs, the pathology is often evident upon applying other means. The interscapular region should never be neglected. Percussion in the older child approximates its value in the adult.

Auscultation.—This is of most importance. One should bear in mind that over an early site of pneumonia there is often marked diminution of breath sounds, with breath sounds harsher than normal on opposite side, leading the inexperienced observer to make a wrong inference as to location of disease. Later on, the breath sounds are quite as typical over areas of consolidation as in adult. It must be observed that normally from perhaps the relatively larger bronchial tree and thin chest wall, the breath sounds in the child are more harsh than found in the adult (puerile breathing). Again, breath sounds are transmitted with

considerable clarity through pleuritic effusions. Rales and adventitious sounds of various kinds are transmitted through chest wall with intensity. Indeed, in the bronchitides, rales often produce vibrations which may be readily perceived on palpating chest.

An outline of the essential facts in a brief series of illustrative cases follows:

1. Pyelitis: Infant, female, seen in consultation in January, 1929, Silver Springs, Md.

History: Sore throat, paracentesis of membrana tympani performed by aurist. Temperature ranging as high as 105 degrees per rectum. Chest showed few rales at base of right lung. Urinalysis reported negative (Commercial Laboratory). Right after drop in temperature, urine examined in my office showed trace of albumin, numerous pus cells with clumping. Alkalinization of urine caused a subsidence of temperature. In pyelitis, pus cells occur in urine in showers and in clumps.

2. Scurvy: In consultation I saw baby I. F., age 9 months and 14 days; breast fed 10 weeks, then given artificial food because mother's milk disagreed; at time of visit was getting three pints of milk each day with three tablespoons of Mellin's food. Milk pasteurized. For three weeks had cried when approached. As trouble was mostly in right leg, family physician took child to hospital where X-ray was taken, which was said to be negative by roentgenologist and physician. Nevertheless, a crinolin spica bandage was applied as it was thought there was "something around joint." X-ray seen by me exhibited raggedness of periosteum of femur. Diagnosis, scorbutus. Spica removed; orange juice cured.

3. Hypertrophic Pyloric Stenosis: Baby B. was seen at Florence Crittenden Home. Since birth has vomited; but slight gain in weight, then loss. Examination revealed crying baby with a definite peristaltic wave moving from left to right over upper right quadrant. Stools have been small. Operation by Dr. Paul Putzki. Weight at 6 months was 14 pounds.

4. Megalocolon: M. M., aged 8, female, seen by me at Children's Hospital, was poorly nourished; has an unusually large abdomen with history of prolonged constipation; bowels sometimes not moving for days. In addition, there was a prolonged history of otitis with deafness; and an enlarged spleen. X-ray of abdomen after barium injection showed dilata-



tion of descending portion of colon and transverse colon which is stated by roentgenologist to represent a "developmental condition."

5. Intussusception: Baby 9 months. Seen by me in consultation. History of being ill for three days; constipated, and for last twenty-four hours passing blood. Rectal examination revealed a characteristic mass. Removed to Sibley Hospital for operation. Death.

6. Tuberculous Meningitis: Boy, aged 6 years, seen in consultation. Had a tonsillectomy about ten days preceding. There was a convulsion about 7 A. M., from which he had quite recovered upon my arrival at 8 A. M. An enema was given for constipation. As he had no tendency apparently of further involvement of nervous system, I made a good prognosis, as I understand was done by another pediatrician called in later. Eventually a lumbar puncture revealed evidence of a tuberculous involvement of the meninges. Moral:

1. Convulsions after age of 4 are serious, even if there be but one.

2. Lumbar puncture indicated early.

3. Before a tonsillectomy, rule out, if possible, tracheo-bronchial adenopathy.

In closing, we would like to reiterate that it is necessary to understand child and parent psychology, together with the possession of adaptability on the part of the physician to the conditions existing. The careful systematic recording of facts relating to the history and present illness of child and physical examination, with their later evaluation, is of paramount importance.

We would like to leave the thought that, in dealing with an animate structure which exhibits the marked variability of spirit and impulse as does the child, the obtaining of facts, with their interpretation, can never be reduced to a scientific formula. The practice of medicine, i. e., the practice of pediatrics, is truly an art based on a structure of empirical stuff and, with Lyon,<sup>2</sup> we are of the belief that it is slowly but surely being shifted to a foundation of science.

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## BRONCHOGRAM AS AN AID IN DIFFERENTIAL DIAGNOSIS OF PULMONARY LESIONS.\*

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The purpose of this paper is not to present something new in the use of iodized oil as an aid in the diagnosis of chest conditions, but to give some idea of our experience with its use.

It is a well-known fact that the introduction of a new therapeutic or diagnostic method is usually followed by a wave of popular enthusiasm which leads us far astray and sometimes into difficulties. Often within a comparatively short time the pendulum swings back, and we find those who in the early days were ardent advocates have assumed the role of cautious advisers, because they have experienced the dangers and are in a position to warn others. This is quite typical of the position assumed by men who have used iodized oil for diagnostic purposes.

Ever since the development of the X-ray, clinicians have been introducing opaque substances to outline various soft visci. It was not until 1922 that two Frenchmen, Sicard and Forestier, after many experiments, developed an iodized oil for tracheo-bronchial injection. At the present time there are two principal products on the market, lipiodol, the French composition, and iodumbria, the Danish product. These are practically the same, as each contains about 40 per cent iodine and are highly stable.

Its field of usefulness has not been confined to the chest, but has invaded other specialties. Steinharter and Samuel Brown have used iodized oil with very satisfactory results in Roentgen ray examination of the uterus and Fallopian tubes, but Haselhorst and Odenthal have described several cases in which its use in hystero-graphy has resulted in severe inflammation and temperature reactions. Armonr cautions against its promiscuous use in diagnosis and localization of spinal cord compression, although he recognizes certain definite indications where it is of great help.

It is very valuable in chest conditions in giving us a clear-cut rapid diagnosis with a permanent record.

We have used it at Mount Regis to confirm a suspected bronchiectasis; for localization of

\*Read before the Roanoke Academy of Medicine.

known abscess; for exclusion of bronchiectasis before thoracoplasty; after thoracoplasty with failure to improve; for demarcation of diaphragm when diaphragm is invisible in suspected subphrenic abscess; for stenosis. In addition, it may be used for demonstration of suspected tuberculous cavity, for bronchopleural fistula; for foreign body, and Finikoff uses iodized oil and calcium in treatment of surgical tuberculosis with intramuscular injections.

The Ballons advise against its use in pulmonary tuberculosis of exudative type, and in tuberculous pneumonia, as immediate reactions are sometimes produced and its persistence produces ill effects. It should not be given in those few cases which are sensitive to iodine.

The most accepted ways of administering iodized oil are either with a bronchoscope or direct injection into the trachea after anesthetizing the pharynx. The latter is quick, easy, less hard on the patient, and requires a minimum of equipment. We use this method at Mount Regis. The fauces, pharynx and larynx are anesthetized with a 10 per cent solution of cocaine. With a tube bent to conform to the curve of the posterior portion of tongue, 1 c.c. of a 1 per cent solution of cocaine is instilled into the trachea. The same results can be obtained by spraying a 2 per cent solution into the pharynx while the patient takes a deep breath. A 30 c.c. syringe filled with a warm sterile solution of the French preparation, lipiodol, is connected with the intratracheal tube and injected as quickly as possible. The solution is thick and viscid, and two or three minutes are usually required for the injection. If the anesthesia is good, the patient suffers no discomfort. The patient is tilted to the side within which the lesion is suspected. If a view of the apex of the lung is desired, immediately after the injection the patient is tilted so his head is pointing to the floor at an angle of forty-five degrees and lying on the side to be X-rayed. If a film of both lungs is desired, the patient lies on his back.

The potential dangers of the administration of an iodized oil (lipiodol) into the tracheobronchial tree from the time its administration is begun until its final complete elimination from the body may be tabulated thus:

1. The danger accompanying the anesthetic used, whether local or general.
2. The possibility of large quantities of oil

reaching the stomach, especially in the deglutition method.

3. The transport of infective material from the mouth or larynx by the oil into the lung alveoli: this danger is obvious, though probably rare. But if such infective material is carried in, we believe that an antiseptic action cannot be expected from lipiodol.

4. The introduction of lipiodol—a foreign substance—into the tracheobronchial tree generally excites cough both at the time of its administration and after it has reached the bronchi of the second order. This cough may:

(a) Be the means of activating the pathologic process already present in the lung.

(b) Bring about the spread of the lipiodol, carrying with it infected material into healthy alveoli, and so cause the rapid development of a bronchopneumonia.

5. Acting as a foreign substance in the lungs, the oil may:

(a) Bring about a degree of reduction of the vital capacity, by its action as a plug, sufficient to produce more or less respiratory embarrassment.

(b) By this plugging action, and because it floats, it may cause the retention and possible absorption of purulent secretions both in dilated bronchi and alveoli.

(c) Through stasis in that portion of the bronchial tree distal to the block, it may prepare that ground for the development of a fresh infective process.

(d) Subjects the patients to the possibility of iodism.

(e) In tuberculous patients, it may actually bring about a sensitization effect with activation of quiescent disease.

(f) Allow the possibility of adding an acute process of the respiratory tract to the already present pathologic process, either from iodism or from the usual congestive action of iodine, or from the projection of infected sputum through coughing into healthy portions of lung.

We have selected from our series at Mount Regis one or two examples each of several common conditions. X-ray films are shown in the more typical cases.

J. I., age thirty-five, salesman. Admitted February 2, 1927.

C. C. Cough.

P. H. Usual childhood diseases. General health fairly good until 1917, when he was discharged from navy suffering with bronchial



asthma. These attacks appeared every three months and lasted for three weeks at a time. This continued until latter part of 1922, when, due to cough, dyspnea, and increased expectoration, he had to stop work. In 1923, he went to Oteen, N. C. Soon after this he was told that he had developed tuberculosis. In 1924, he returned home as an "arrested" case, and had a tonsillectomy and submucous resection. Returned to North Carolina in 1925, and was discharged the latter part of that year with diagnosis of bronchiectasis.

F. H. Irrelevant.

P. I. In September, 1926, was raising about four ounces of sputum, and became so weak that he was forced to go to bed. The expectoration became more profuse and he was bringing up about twelve ounces in December. He was getting progressively weaker and had to remain in bed all the time. At this time his temperature ranged around 99° and 101°. He was taking two and one-half grains of morphine daily. Entered Mount Regis, February, 1927.

twenty-four hours; pleurisy six months ago; night sweats recently; nervousness, dyspnea.

P. I. Began to feel tired and was easily fatigued in December, 1925. In March developed pleurisy and was given hospital treatment. The severe pain lasted only a week, but patient failed to recover her strength. In April she noticed that she was becoming quite short of breath. At times this became so severe that she was unable to talk in comfort. Her heart would beat fast and cheeks would become flushed. A productive cough appeared at this time, and ten weeks later patient began to have night sweats. This lasted for two months, and at the time of admission she was quite nervous and unable to get the proper amount of rest at night. Would raise about sixteen ounces of purulent material each twenty-four hours; temperature at that time was 104°. Expectoration decreased, however, until she was bringing up only about three ounces.

P. H. Mumps and scarlatina. When eight years of age had some trouble with hip which

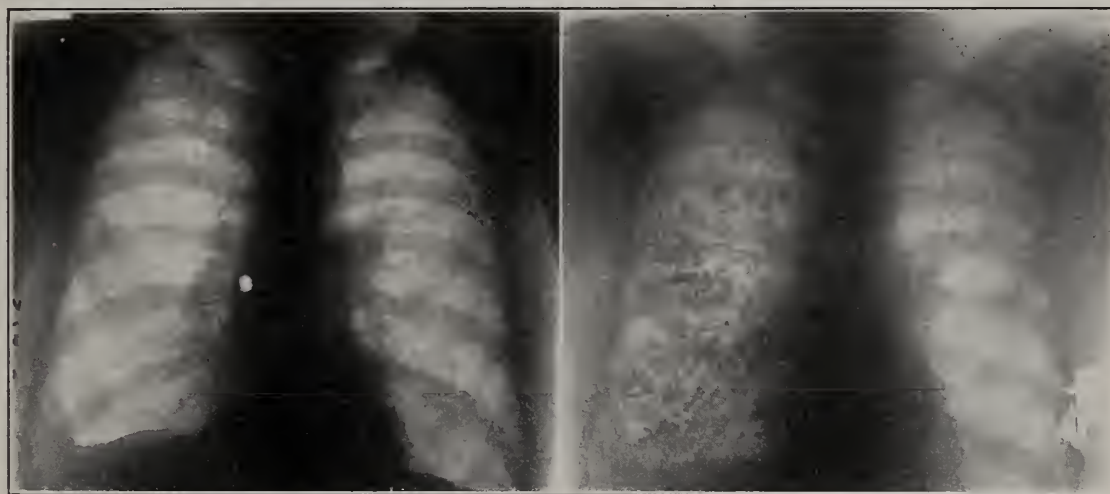


Fig. 1.—Left shows bronchi before the injection of lipiodol. Right shows same thorax following lipiodol injection. Note sacculation of terminal bronchioles.

*Physical Examination:* Moisture throughout both lungs except at extreme apex. Sonorous and sibilant rales throughout.

*X-ray 1461:* Marked saccular bronchiectasis most noticeable through the central part of lung. (See Fig. 1.)

The following are cases of abscesses:

C. W., Case No. 1563, female, single, clerk, age twenty-six, admitted August 18, 1926.

C. C. Cough, expectoration, about three ounces of fetid, viscid, purulent sputum every

required a brace for one year. When thirteen years of age hip was operated upon and patient had good recovery and has walked ever since; typhoid fever in 1921, with normal recovery.

F. H. Irrelevant.

*Physical Examination:* August 25, 1926—Flatness over right base, with cavitation at lower angle of scapula. Stereoscopic X-ray films confirmed suspicion aroused by physical examination in as much as there was a marked

homogeneous density extending from the third rib and sixth dorsal spine to diaphragm, and was of sufficient density to entirely obliterate the diaphragmatic arch. There was no evidence of parenchymatous tuberculosis noted. W. B. C. 15,000. Weight eighty-five pounds.

Artificial pneumothorax was attempted, but was unsuccessful—due to the number of adhesions.

On September 16th a slight bulging was noted at the left base posteriorly which resulted from a needle track infection following attempted artificial pneumothorax, and under local anesthesia eight ounces of fetid pus was evacuated. Her incision closed and it became necessary to open it on two subsequent occasions.

On December 7th, under ethylene anesthesia, an incision was made over sinus and all granulation and scar tissue in lungs dissected out; no ribs removed.

evulsion was advised, although general condition much improved. No temperature. Seventeen pounds gain.

Following phrenic evulsion, there was one and one-half inch elevation of diaphragm, with compression of the lower border of cavity.

Patient discharged October 1, 1927; weight 114¾ pounds. No further trouble.

F. B., Case No. 1670, male, single, miner, age twenty-four, admitted June 30, 1927.

C. C. Constant cough; profuse fetid purulent expectoration of about sixteen ounces daily; loss of weight and appetite; headache; temperature 99° to 100°; dyspnea; constipation.

P. I. Tonsillectomy April, 1926. Aspiration pneumonia three weeks later. Duration ten days. One week later temperature again went up and continued for three or four days when he suddenly expectorated "pints or quarts" of fetid pus. X-ray showed abscess.

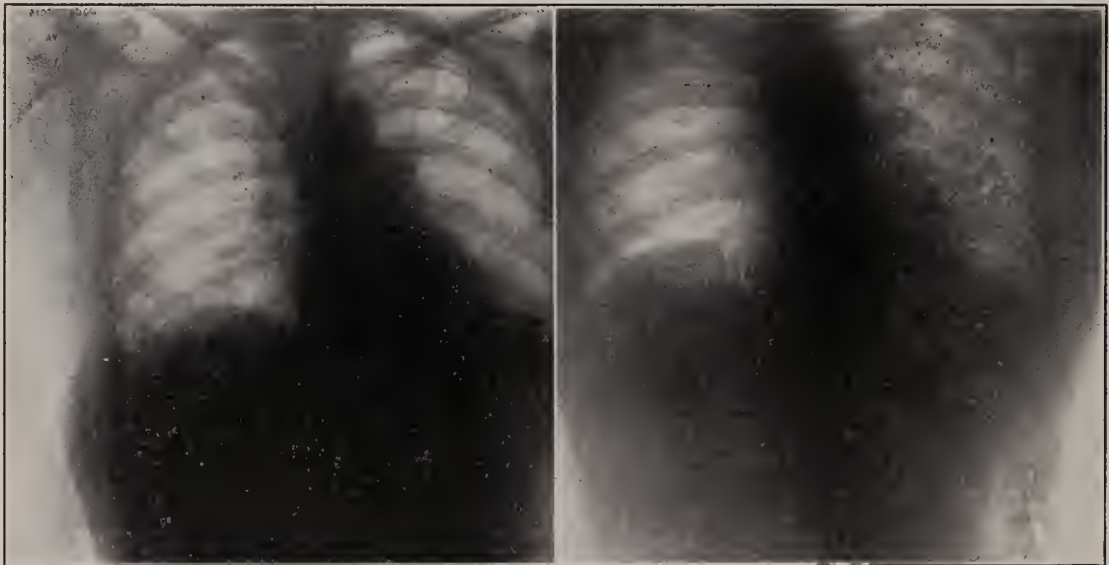


Fig. 2.—Left shows the appearance of chest before lipiodol injection. Right shows appearance of abscess cavity following lipiodol injection. Note cavity as outlined with lipiodol behind the heart shadow.

On February 4, 1927, X-ray film showed base of left lung to be considerably clearer. Lipiodol injection suggested to determine if there was an abscess back of the heart shadow.

Bronchoscopic drainage, aspiration, and injection of lipiodol showed post-cardiac annular shadow, size of lemon (see Fig. 2.) Postural drainage, Alpine lamp, etc., given.

Lipiodol injection on October 5, 1927, showed cavity to be markedly diminished in size. In view of location of abscess, phrenic

Treated for nine weeks and told he was well. In December, 1926, developed a second abscess, and had a third flare-up in March, 1927, after which time he remained in bed, running a temperature of 104°, with cough, sweats, expectoration, etc. Admitted to Mount Regis, June, 1927.

P. H. Poor health until ten years of age. Did outside work and was very healthy from that time until onset of present illness.

F. H. Irrelevant.



*Physical Examination:* Flatness and absence of breath sounds over right base. W. B. C. 20,000; temperature 100.6°.

X-ray made July 1, 1927, showed a large pulmonary abscess involving lower lobe of right lung.

Bronchoscopic drainage and lipiodol injection on September 20, 1927. Subsequent bronchoscopic treatments resulted in normal temperature, the removal of a large quantity of pus, and improvement in general condition.

Due to cessation of improvement, the eighth and ninth ribs were removed February 16, 1928, and drainage through the chest wall established. Patient failed to improve, and X-ray films taken March 31, 1928, showed the right lung as follows: Mottling throughout the upper lobe. A cavity (about 5 c.m. in diam.), in which there was a fluid level, noted back of second and third ribs and third interspace, using anterior markings. There appeared to be a few bronchiectatic areas extending out from the hilum. There was a somewhat opaque density at base which was sufficiently dense to obliterate the diaphragmatic dome. The trunks in the upper part of this density were well filled with lipiodol and appeared normal. The lipiodol injected into the operative wound was noted low down in front of the ninth and tenth interspaces, using posterior markings.

Patient improved steadily until August 4, 1928, when he developed pneumococcic meningitis and died one day later.

The following are examples of neoplasms:

D. H. Y., age fifty-one, brakeman, admitted November 27, 1926.

C. C. Cough and expectoration since 1912 with exacerbations; hemorrhage June 28, 1926; loss of weight; marked loss of strength; pleurisy in right side; shortness of breath.

P. H. Patient had the usual childhood diseases. Health poor since 1912. Had had bronchial trouble for fourteen years. Had kidney colic in August, 1928. Hay fever each summer. Frequently vomits when he coughs. Hemorrhoids at times. Voids two or three times at night. Exposed to tuberculosis when infant.

F. H. Irrelevant.

P. I. Onset in July, 1926, with hemorrhage. Gradual weakness since that time.

*Physical Examination:* November 30, 1926. Examination of chest reveals dullness throughout the left lung. The breath sounds are

somewhat suppressed over the upper part of the left and absent at base. No rales could be heard either on deep breathing or following the auscultatory cough. Heart negative, second pulmonic accentuated; nose, teeth, pharynx and larynx negative; sputum negative; urine negative; Wassermann negative. Temperature ranged around 99.5° with a very slow pulse.

X-ray at this time showed what we thought to be a malignant neoplasm involving the left lung throughout. The patient made marked improvement for next four months, and diagnosis was changed to non-tuberculous suppurative lesion. Lipiodol injection at this time showed cavities at base and no lipiodol in ascending trunks.

Patient later referred to Cole and Johns. Bronchoscopic examination and lipiodol injection showed angio-sarcoma blocking ascending trunks, complicated by suppurative lesions involving remainder of lung.

H. B., age forty-four, insurance salesman, admitted to Mount Regis for examination May 23, 1921.

C. C. Pleurisy pains in left base.

P. H. In 1915 patient was treated at Battle Creek Sanatorium for gastric disturbance and rheumatism; tonsillectomy at this time. Rheumatism continued for one year. Teeth were X-rayed and one found infected and removed; rheumatism improved. Stomach trouble characterized by nausea, lasting three to six days. Severe pain across upper abdomen always with attacks. Physical examination was negative except for being poorly nourished. Weight 123 pounds. Symptoms continued with remissions, and appendix was removed in March, 1921. Gall-bladder negative. There were several enlarged glands about the neck of the gall-bladder.

F. H. Father died of tuberculosis when patient was six years old.

P. I. Admitted to Mount Regis for examination May 23, 1921, complaining of pleurisy pains at left base. Examination revealed slight impairment of resonance on the right to second rib and spine of scapula, with rather marked impairment of resonance over hilus, posteriorly. W. V. is increased in intensity over this area. No rales could be elicited either on deep breathing or following the auscultatory cough. Left lung negative.

Films taken May 2, 1926, after injection of

lipiodol into the lower right lobe, showed no evidence of bronchiectasis.

*Diagnosis:* Bilateral malignant neoplasm.

N. N. P., age fifty-five, farmer.

C. C. Severe cough with copious expectoration; pain in right side; shortness of breath; loss of strength; occasional night sweats.

P. H. Healthy as a child. No childhood diseases remembered. Pneumonia at age of eighteen. Normal recovery. Has always taken colds easily. These usually remained all winter, although they cleared up during the summer. Colds usually accompanied by chills and night sweats. In 1918, had influenza, accompanied by pleurisy, and was sick for six weeks. Five years later had similar attack, and again two years later.

F. H. Irrelevant.

sema. B. P. 110/82; nose septum thickened; teeth poor, slight pyorrhea; tonsils diseased; larynx congested; multiple lipoma over both arms. Wassermann negative; sputum negative for tubercle bacilli; urine showed abundant pus with bacillus coli; W. B. C. 12,000.

Stereoscopic X-ray plates (Fig. 3) showed massive atelectasis of right base, with diaphragm drawn markedly upward; etiology undetermined. Lipiodol injected which showed complete obstruction of trunks to lower part of right lung; could be explained by foreign body, inspissated secretions, or complete stricture. It was our opinion that this stricture was in some way the result of pulmonary abscess. Patient was sent to Dr. Chevalier Jackson and diagnosis of carcinoma was made following bronchoscopy and biopsy.

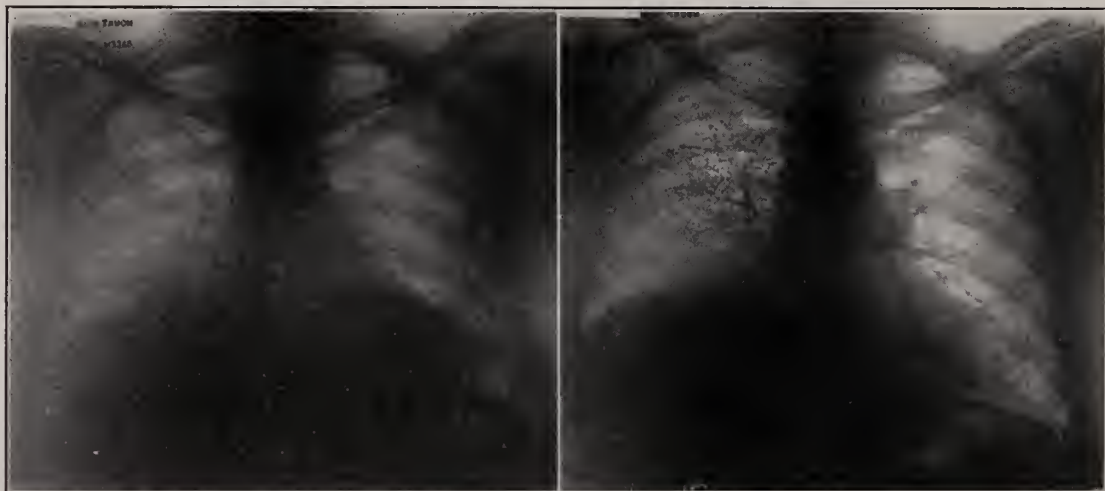


Fig. 3.—Left shows film taken before lipiodol injection. Note elevation of right diaphragm and density at right base. Right shows film taken following injection of 30 c.c. lipiodol. Note complete stenosis of descending trunks on right. Left normal.

P. I. Present illness began in December, 1926, with pneumonia. This was followed by severe cough and copious expectoration. X-ray examination, 1921, revealed pulmonary abscess at right base. There have been short intervals during which he was free from cough. Expectorates blood frequently. Severe pain in right side at present. Has occasional night sweats. Chills several months ago, but none at present. Appetite capricious; constipated; loss of weight and strength; sleeps very poorly.

*Physical Examination:* Dullness to percussion throughout right back. Absence of breath sounds over middle and lower lobes. Sonorous and sibilant rales over upper lobe. Left lung negative except for compensatory emphy-

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## REGENERATIVE HYPERPLASIA IN EXOPHTHALMIC GOITER: A CONDITION SIMULATING CARCINOMA.\*

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In carcinoma of the thyroid gland, the variation in cellular morphology probably is greater than that which occurs in carcinoma of any other organ. Some carcinomas of the thyroid gland, with their fairly well developed columnar epithelium arranged in a papillary manner, resemble to some extent the structure in exophthalmic goiter. These carcinomas, as would be expected, are of a low grade of clinical malignancy. In some instances their cells approach so nearly a differentiated state that they are known to have function, and thereby produce hyperthyroidism similar to that manifested by Plummer's toxic adenoma. Conversely, carcinomas of the thyroid gland may

coma or lymphosarcoma, I am adding a condition that I have been observing for a number of years in exophthalmic goiters. In this condition, the microscopic appearance closely simulates that of carcinoma; it is, however, benign. This condition I believe to be a form of regenerative hyperplasia. I am unable to say whether or not it occurs in cases of non-toxic goiter, but so far it has not been observed in them.

The cells in this regenerative hyperplasia vary in size and shape about as much as those that occur in carcinoma of the thyroid gland. In both carcinoma and regenerative hyperplasia of the thyroid gland there is a marked average deviation of the cells from those of the normal gland. Although the smallest cells

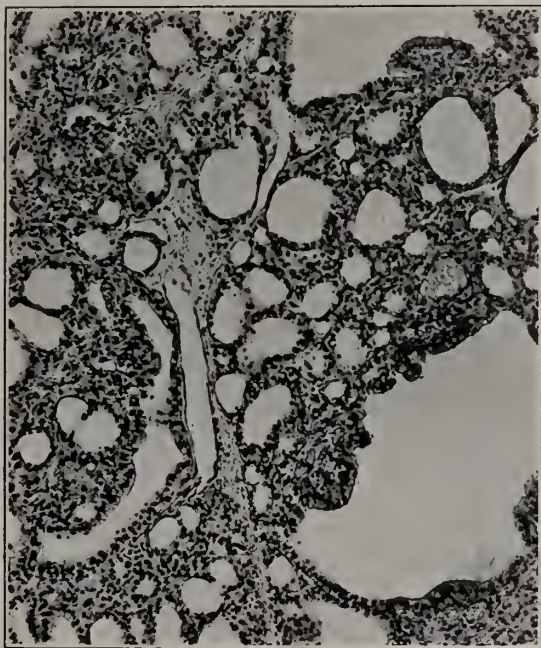


Fig. 1.—Columnar cells of exophthalmic goiter partially replaced by irregular densely-staining cells of regenerative hyperplasia.

be composed of cells that are so undifferentiated, and endowed with such marked proliferative energy, that their clinical malignancy is of the very highest grade. To this wide range of cellular morphology in carcinoma of the thyroid gland, in which carcinoma may simulate pathologic processes ranging from benign growths to highly malignant fibrosar-

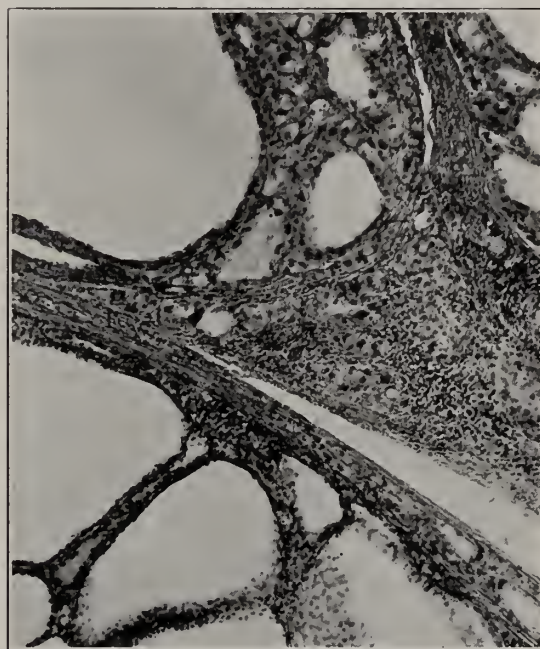


Fig. 2.—Regenerative hyperplasia in follicles of upper half of picture compared with small spherical cells in follicles of lower half. The cells in the lower half are apparently in an inactive state.

in regenerative hyperplasia are about the size of plasma cells, others are very large, simulating in some instances tumor giant cells. Each of these large cells, instead of being multinucleated, has a single nucleus that often appears to be lobulated. Some of the nuclei in regenerative hyperplasia stain palely with hematoxylin, but for the most part there is a tendency for the nuclei to take up an excess of this dye. In contradistinction to the average carcinoma of the thyroid gland, in regenerative hyperplasia, mitotic figures are practically ab-

\*Read before the Richmond Academy of Medicine, Richmond, Va., May 28, 1929.

sent and the presence of prominent nucleoli is inconspicuous. These two features, I believe, will enable one to distinguish this condition from carcinoma of the thyroid gland.

When regenerative hyperplasia is detected only by microscopic means, the characteristic appearance may be found in small, scattered areas partially replacing the columnar cells (Figs. 1 and 2), or it may occur throughout the gland, completely replacing the columnar cells (Figs. 3 and 4.) When the cells are found throughout the gland, for the most part the number of cells within a follicle is not markedly

thelium. Their significance to him was not clear. They were also observed by Giordano and Caylor in their histologic study of the effect of ligation of the thyroid vessels in exophthalmic goiter.

In addition to the form that is recognized

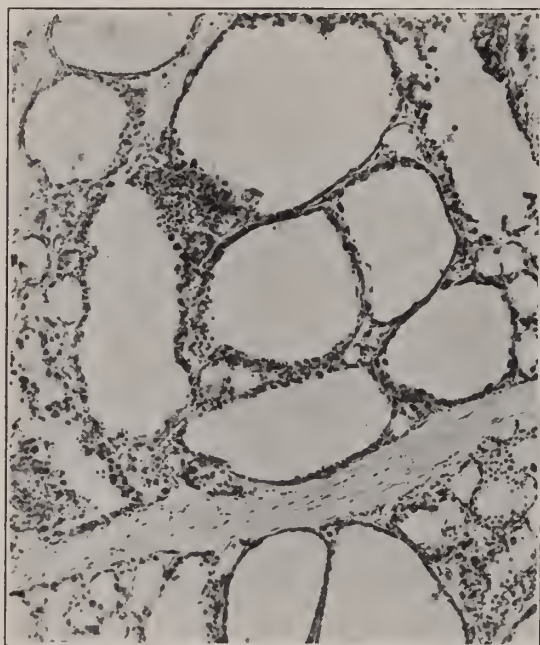


Fig. 3.—Columnar cells of exophthalmic goiter completely replaced by densely staining, irregular cells of regenerative hyperplasia.

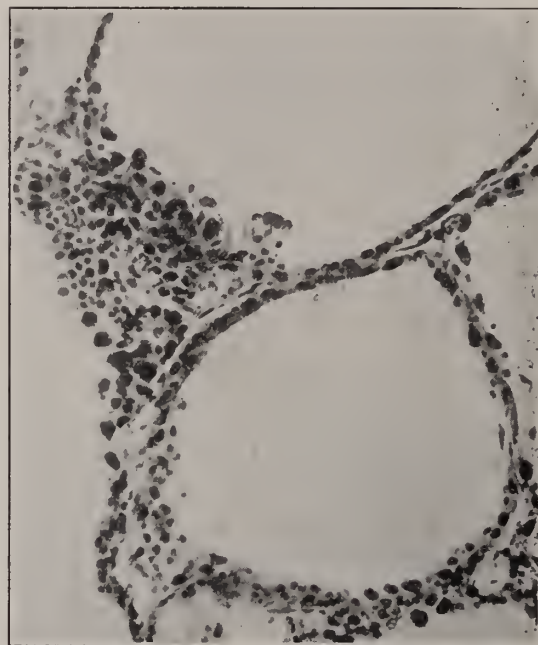


Fig. 4.—Higher magnification of Figure 3.

in excess of that found in the normal follicle and usually their site is limited to the inner part of the wall of the follicle; they display practically no tendency to fill the center. In this state there appears to be replacement, by regenerative cells, of the columnar cells that are characteristic of exophthalmic goiter, and the gross appearance of the gland is not greatly different from that of the average exophthalmic goiter in which the patient has been given Lugol's solution (compound solution of iodine). MacCallum, in 1907, observed and described these cells in one or two cases of exophthalmic goiter in which the symptoms were especially severe and in which he thought there was widespread desquamation of the epi-

only on microscopic examination, regenerative hyperplasia may present itself in forms in which it can be recognized grossly. There may be single, yellowish-white, irregular areas about 1 cm. in diameter, or there may be multiple, circumscribed, pale-pink areas which simulate both carcinoma and fetal adenoma and which range from 1 mm. to 2 cm. in diameter. The form in which there is a single yellowish-white irregular area may be seen under the microscope to be in a diffuse, alveolar and acinar arrangement (Fig. 5.) The cells in this form may be deeply stained (Fig. 6) and irregular in shape and size, or they may be spherical and pale staining (Fig. 7.) The form in which there are multiple pale-pink circumscribed areas also may present an alveolar (Fig. 8) and acinar, but not a diffuse, arrangement. The cells in this form may be columnar or spherical, and for the most part pale staining. Moreover, in this form when the cells are in an acinar arrangement there may be a papillary infolding effect like that seen in papillary carcinomas of the thyroid gland and in exophthalmic goiter.



The form that can be recognized grossly by the presence of circumscribed, pale-pink areas bears a resemblance to carcinoma closer than the other form which can be recognized grossly. Whether this form can become transformed into carcinoma, whether it is only the beginning of an adenoma or whether it constitutes the early, developmental stage of an area of parenchymatous hypertrophy characteristic of exophthalmic goiter remains to be seen. It is well to bear in mind that the incidence of carcinoma in diffuse exophthalmic goiter is practically zero, and also that carcinoma rarely is found in adenomas situated in exophthalmic

tory of hyperthyroidism; also, it was found both in those cases in which the hyperthyroidism developed suddenly and in those in which it developed gradually.

The question arises whether or not in these

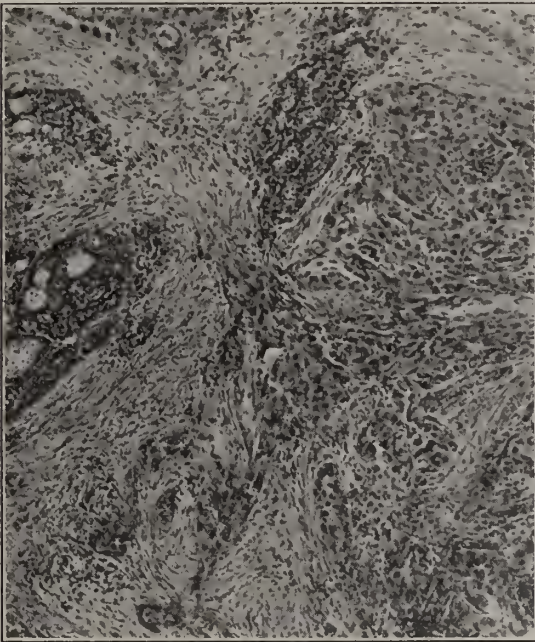


Fig. 5.—Regenerative hyperplasia presenting a diffuse alveolar and acinar effect. Grossly it appeared as a single yellowish-white irregular area.

goiters. Although I have made a diagnosis of carcinoma in exophthalmic goiter on more than one occasion, I am of the opinion that the condition I called carcinoma probably was regenerative hyperplasia, especially in the non-adenomatous cases.

I am reporting nine outstanding cases of regenerative hyperplasia that I have observed at The Mayo Clinic during the last four years in the ordinary routine examination of about 5,000 cases of exophthalmic goiter; the chances are that the incidence will be increased if a detailed examination of each gland is made. It occurred both in cases with a short history of hyperthyroidism and in cases with a long his-

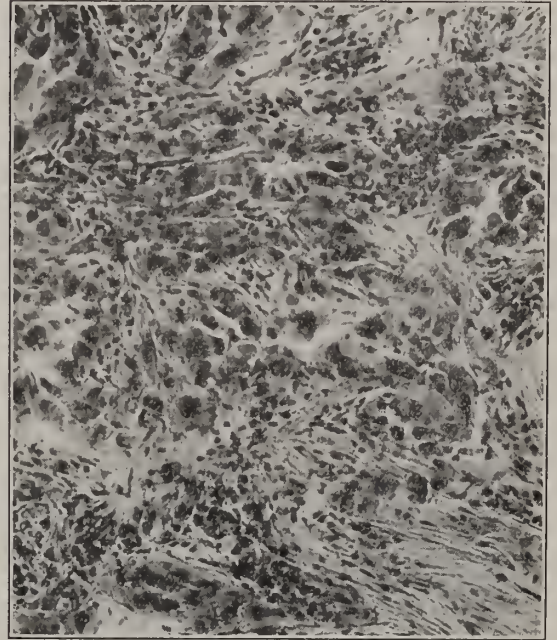


Fig. 6.—Higher magnification of Figure 5. The cells have the same appearance as those of Figures 1, 2, 3 and 4, although the condition in those cases was not grossly recognizable.



Fig. 7.—Pale staining spherical cells presenting both an alveolar and acinar effect. The gross appearance is practically the same as that in Figure 5. There is an associated marked lymphocytic infiltration.



nine cases of regenerative hyperplasia there is any evidence that treatment previous to operation at the Clinic had any influence in causing the hyperplasia to develop. None of the nine patients had undergone operation before entrance to the Clinic. Five had received some preparation of iodine before they had come to the Clinic; one of these five had taken iodized table salt. Of the remaining four patients, one had been given some medicine after exophthalmos had developed but the patient did not know what the medicine contained. Three patients gave a history of not having been given any preparation of iodine before they had been admitted to the Clinic. All nine patients received Lugol's solution at the Clinic, prior to operation. Of the three who had not received iodine before they entered the Clinic, one was given Lugol's solution for seventeen days before operation, and to the other two it was administered for about one month prior

In some of the cases of regenerative hyperplasia, there is a fair to moderate degree of thyroiditis, manifested by lymphocytic infiltration, while in others there is very little. It is safe to say that this peculiar hyperplasia cannot be attributed to treatment by radium or roentgen rays. Thyroiditis, which has increased in incidence in recent years, possibly is a factor in causing regenerative hyperplasia. It is barely possible that the administration of iodine by one or another method is responsible for this hyperplasia. However, this seems unlikely as the condition was observed under the microscope before the use of iodine in treatment of exophthalmic goiter became universal. Furthermore, if iodine is the responsible agent, why is it that the condition so rarely manifests itself at the present time? After considering all possible known factors, I am of the opinion that the cause of this regenerative hyperplasia is problematical.

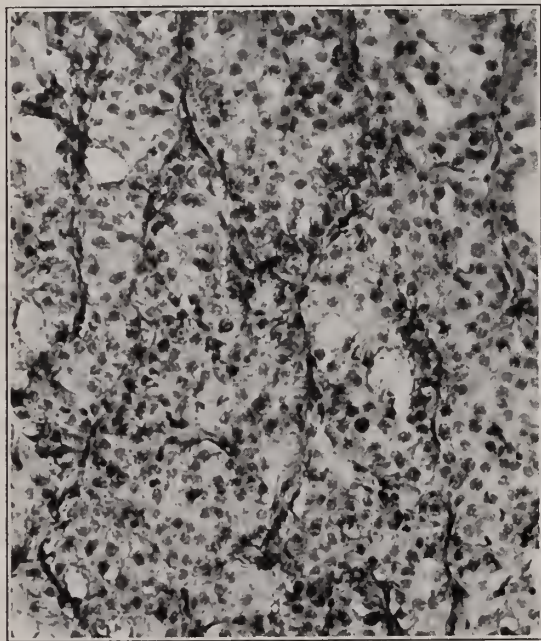


Fig. 8.—Section from a pale-pink circumscribed area showing pale staining spherical cells arranged in alveolar formation.

to the surgical procedures. In addition, before entering the Clinic, the patient who was given Lugol's solution for seventeen days before operation had received treatment for goiter by radium and roentgen rays, and the patient who had been given the medicine of unknown nature after exophthalmos had developed had received treatment for goiter by roentgen rays.

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#### DYSTOCIA.\*

By M. PIERCE RUCKER, M. D., Richmond, Va.

The subject that you have assigned to me—Difficult Labor—is one that confronts practitioners of medicine all too frequently. It might be divided into two parts (1) mechanical or anatomical, and (2) functional or physiological. In the former belong such labors that are rendered difficult by reason of a contracted pelvis or an over-size child, malposition, obstructing tumors or cicatrices of the cervix. In the latter belong those caused by anomalies in the contraction of the uterus. Those of the former group can be foreseen and usually avoided by prenatal care. Those in the second category cannot be foretold, and are little understood and are therefore an interesting subject for discussion.

For a labor to terminate spontaneously two things are necessary: The cervix must dilate and then after this preparation of the birth canal, the fetus must be expelled. To accomplish the dilatation, rhythmic and orderly contractions of the uterus are necessary. The expulsion of the fetus is brought about by the

\*Read before the Manchester Medical Society, May 7, 1929.



continuing effort of the uterus, re-inforced by the action of voluntary muscles, especially the muscles of the anterior abdominal wall and the diaphragm.

A great deal of work has been done upon the contraction of uterine muscle and the various drugs and chemicals that influence it.<sup>1</sup> A strip of uterine muscle has inherent powers of rhythmic contraction, the rhythm varying according to the time in the menstrual cycle. The entire uterus either removed from the body or in situ removed from all nervous connections has been shown to have the power of normal and ordinary contraction. Little work, however, has been done that throws light upon the dilatation of the cervix or upon the nervous control of the uterus. We do not know what causes the cervix to dilate. Is it purely mechanical, the cervical canal being forced open by the wedge-like action of the bag of waters, the so-called hydrostatic wedge, driven by the force of uterine contractions; or does it act like other sphincters of the body, the pylorus, for instance, an active muscular relaxation, if you will excuse an awkward term, fitting in with wave-like contractions of the uterine body? Or is there a combination of these factors? It seems to me that the mechanical explanation is not sufficient. I have a number of hystero-grams that show intense uterine action for as much as 36 hours with scarcely any effect upon the cervix. On the other hand, I have seen cervices dilate with scarcely any measurable uterine force.

In the past few years, Knaus<sup>2</sup> has done some interesting experiments upon laboratory animals, which tend to show that as the animal approaches term the uterus undergoes a sort of physiological ripening. For instance, the period of gestation for a rabbit is 32 days. At this time the injection of pituitrin in comparatively small doses causes the expulsion of a live fetus. Before the 29th day, pituitrin in somewhat larger doses will cause the expulsion of the fetuses, but many will be still-born. Before the eighteenth day, pituitrin will not cause the expulsion of the fetuses at all.

To further complicate matters, there is the fact of nervous control. We know that the uterus can act entirely anatomically. Pregnant uteri entirely removed from animals have delivered their contents on the laboratory table. Sir James Y. Simpson<sup>3</sup> showed many years ago that a sow could deliver all but the last of her

litter when the spinal cord had been removed. Births have taken place in human beings after transverse lesions in the cord,<sup>4</sup> and there are a number of cases on record of post-mortem spontaneous deliveries.<sup>5</sup> On the other hand, the effect of emotions on labor is well recognized. Every doctor has seen the entrance of a stranger, or the doctor himself, into the lying-in room stop labor pains for a while.

It would seem then that obstetricians have to deal with a hollow muscular viscus, closed by a sphincter-like structure that is capable of anatomically emptying itself of its contents at the proper time, but which is under direct control of the nervous system. Probably there is a dual control, sympathetic or parasympathetic, analogous to the nervous control of the heart. There is also a hormonal control as yet imperfectly understood. Marshall<sup>6</sup> and his co-worker have shown that, in pregnant animals at term, a demonstrable amount of pituitrin can be found in the spinal fluid, but before that time such is not the case.

With this rather sketchy review of the newer facts concerning parturition, let us now consider several types of functional dystocia. First, there is the patient who has exaggerated "false pains". She may be at term according to calculation or she may be just approaching term. I have now a patient who was delivered of her first baby by Cesarean section. Her pelvis is normal. She says that the operation was done because her womb would not dilate. At the end of 24 hours of hard labor it still would not admit one finger. In this connection I would like to report briefly the following case: Mrs. P., age 20. Her pelvis was normal. Physical examination was normal. At about the expected date of confinement she began to have pains, lost some water and had a lot of discharge. She was taken by her doctor to the Retreat for the Sick. Some 36 hours later, I was called in consultation because it was thought that a Cesarean section was necessary. There seemed to be no disproportion, nor was there any dilatation of the cervix. The pains continued and between the entreaties of the patient and the anxiety of her family, her doctor was driven almost to distraction. He begged me to take her off his hands. The patient was given sedatives, sent home and 10 days later fell into real labor and was delivered by version without complications. The baby

weighed  $8\frac{1}{2}$  lbs. and was 53 cm. in length.

The next group are those that seem to have a non-dilatable cervix. This condition is to be distinguished from the stenosed cervix or the cervix that is unyielding because of scar tissue. The cervix becomes thinned out and the external os dilates perhaps a few centimeters and there it stops in spite of intense uterine contractions. Dührssen's incisions is the best way of relieving such patients. The following case illustrates this type. Mrs. A., age 27, was due, by Naegele's rule, December 28th. Her pelvis was normal as was her general physical examination. Patient entered the hospital December 25th. On December 29th the cervix was effaced but not dilated. A No. 5 Voorhees' bag was placed. She had slight pains but no dilatation and the bag was removed December 30th, at 9 P. M. In the afternoon of December 31st, the patient began to have hard pains. The cervix was very thin. The os admitted three fingers, and its edge felt as if it were made of piano wire. By midnight there was no further dilatation. Three incisions were made, two anterior corresponding in position to 2 and 10 on the face of the watch, and one directly posterior (6 o'clock). Kielland forceps were then applied and an easy extraction was done. The baby weighed 3593 gm. (7 lbs. and  $14\frac{3}{4}$  oz.) and measured 56 cm. The puerperium was uneventful and the mother and child left the hospital on the ninth day in excellent condition.

Finally, there is the contraction rings. There has been a great deal written as to where these rings form. Some have described semi-circular contraction bands in almost every part of the uterus. The ones that I have seen have been situated at the junction of the upper contractile with the lower non-contractile portion of the uterus. The etiology of this anomaly of contraction is not clear. Many have occurred in dry labors, but not a few have occurred before the membranes have ruptured. A well developed contraction ring freezes on to some depression of the fetus, such as at the neck, and effectively prevents further advance or change in the position of the fetus. It resists deep anaesthesia. Cases are on record where at Cesarean section, craniotomy or decapitation<sup>7</sup> was necessary before the head that was below the ring could be delivered. Such advanced cases are fortunately rare, but I believe there

are milder types, often unrecognized that cause otherwise unaccountable dystocia. I recall several forceps cases that resisted extraction in a very mysterious manner. There seemed to be no bony obstruction, but after the forceps had been applied I could neither advance the head nor rotate it. A careful examination with the whole hand in the birth canal revealed a contraction ring, and after it had been relaxed extraction was surprisingly easy.

Adrenalin is the physiologic remedy for contraction rings.<sup>8</sup> I discovered this quite accidentally in some work upon sacral anaesthesia. In hystero-grams upon patients with sacral anaesthesia, I noticed a marked difference according to whether adrenalin was used with the novocaine or not. If adrenalin be put in the novocaine there is a temporary cessation of uterine contractions, but if the adrenalin be left out of the preparation, the uterine contractions continue uninterruptedly.<sup>9</sup> This action of adrenalin is entirely contrary to what has been taught, but it can be easily demonstrated upon the hystero-gram after hypodermic administration. This work with adrenalin was made the subject of a paper that I read before the Southern Medical Association at its New Orleans meeting. At the next meeting of the association, Dr. Pride<sup>10</sup> read a paper upon Contraction Rings and, in the discussion of Dr. Pride's paper, it was suggested that adrenalin ought to be a good thing to relieve the spasm. Clinical experience since then has confirmed this supposition. It is used in 5 minim doses hypodermatically. Theoretically, there is the chance of the contraction of the blood vessels at the site of the injection interfering with the absorption of the drug. If this occurred and the case were sufficiently urgent, it could be used intravenously, but the intravenous route is not without danger.

I recognize that my treatment of the subject has been extremely incomplete and sketchy. My aim has been to present for discussion the types of dystocia that are more apt to be met in general practice. The severer grades of contracted pelvis that give so much trouble in obstetrical clinics are rarely met with among pay patients. The dystocia due to postmaturity, now that the public is recognizing the importance of prenatal supervision, is becoming less frequent, but the dystocias due to anomalies of uterine contraction are as fre-



quent as ever. In fact the stress of modern civilization seems to make them more frequent.

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Medical Arts Building.

## PARTIAL HYDATID DEGENERATION OF THE PLACENTA LATE IN PREGNANCY.\*

### Report of a Case.

By FRANK HELVESTINE, JR., M. D., Roanoke, Va.

Hydatid degeneration of the placenta late in pregnancy is a relatively rare occurrence. Findley in 1903, in a series of 210 cases of mole formation collected from the literature, cites a case reported by Potu, of a patient with generalized hydatid degeneration of the placenta who was delivered at term of a normal

fetus. Allen (1928) reports two cases, one delivered at seven and a half months and the other at eight with hydatid changes of the placenta and marked edema of the fetus. The following case is very similar to those reported by Allen.

#### CASE REPORT

The patient is a white multipara twenty-three years of age. Her family history is unimportant and her past history, except for the marital history has no bearing on the present case. The present was her fourth pregnancy. The first pregnancy went to term with the delivery of a normal child but was complicated early by pyelitis. The second pregnancy ended in an abortion at about two months. The third pregnancy was interrupted two weeks before the calculated time of termination with the induction of labor by Watson's method, because of an attack of acute pyelitis. She was delivered of a normal fetus.



Fig. 1. Photograph showing generalized edema of the fetus.

The first day of her last menstrual period began May 26, 1928, which gave the calculated date of confinement as March 2, 1929. Pregnancy proceeded normally until the middle of September, 1928, when the patient had an attack of cramp-like pains in the lower abdomen, with some bleeding. Under medication and rest in bed, the pains and hemorrhage checked, but over a period of three weeks there was an irregular bloody discharge and several small clots were passed. Examination at this time showed the cervix to be dilated to the extent of 2 cm. in diameter.

\*Read at a meeting of the Roanoke Academy of Medicine on March 4, 1929.

Finally, the hemorrhage and pains ceased entirely and the patient had no further trouble until December 20, 1928. At this time she had an attack of abdominal pain principally on the left side. The pain started at the level of the kidney and extended to the pelvis. The patient complained also of severe lumbar backache, and the attack was accompanied by nausea and vomiting. The patient's temperature was normal and examination of the urine showed only an occasional pus cell in the catheterized specimen. Following this attack the abdomen began rapidly to enlarge and the



Fig. 2.—X-ray picture showing degree of edema of the fetus.

patient became very uncomfortable due to pressure symptoms. Backache was persistent. From the middle of January, 1929, until admission to the hospital, the patient was almost constantly in bed and the last few nights before admission she could not sleep even after the administration of hypnotics. She entered the hospital January 28, 1929, in the eighth month of her pregnancy.

Examination showed a rather emaciated

white woman, five feet six inches in height. Before pregnancy she weighed 95 pounds. Examination of the head and neck showed nothing of interest. There was no edema of face and no enlargement in the thyroid region. The chest was poorly developed and the breasts pendulous. Examination of the chest showed no lung pathology. The heart was normal in size and there were no irregularities or murmurs. Pulse rate was ninety per minute and systolic blood pressure was 115 mm., while diastolic blood pressure was 80 mm.

The abdomen was tremendously distended by a very tense uterus extending up to the ensiform. The fetal parts could be palpated with difficulty but with no certainty of recognition. Fetal heart sounds could not be heard but the uterine souffle was very plain in the lower abdomen.

Vaginal examination showed the cervix dilated to such an extent that two fingers could be introduced. The presenting part was so high that it could scarcely be palpated. The membranes were bulging.

The extremities showed nothing of interest and the reflexes were normal.

Urine examination showed nothing of note except a few pus cells, and the blood Wassermann done early in pregnancy was negative.

Shortly after admission to the hospital, the patient was prepared and a large Voorhees' bag measuring 10 cm. in diameter was introduced and inflated with sterile water. Traction was made on the end of the bag by a two pound weight hanging over the foot of the bed. Pains commenced immediately and in three hours the bag had passed the cervix. The patient was taken to the delivery room and the bag removed from the vagina. Under chloroform anaesthesia, dilatation soon became complete. Examination showed the occiput to be posterior and to the right. The head was large and on palpation it showed a putty-like consistency.

A version was attempted and although the feet could easily be grasped, because of the greatly distended abdomen of the fetus and its large head there seemed to be insufficient leverage to turn it. The membranes were, of course, ruptured during this manipulation with the expulsion of at least two gallons of amniotic fluid. Forceps were applied and the head rotated to a position with the occiput anterior and to the left. With small doses of



pituitrin at fifteen to twenty minute intervals to stimulate contractions, the head descended to the midplane where forceps were reapplied and delivery accomplished. Because of the brisk hemorrhage, the placenta was removed manually. A second degree laceration of the perineum was repaired. The first two days' post partum were very uncomfortable for the patient and the temperature reached 101° F. but was down to normal the next day and remained so until the patient left the hospital on the fourteenth day.

Examination of the fetus showed a generalized edema; the ascites and the edema of the face and head being most marked.

The placenta was large, about one and a half times the diameter of an average placenta and about twice as thick. The uterine surface was not of the firm consistency as nor-

elements were only rarely seen and those blood spaces present were engorged with red corpuscles.

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612-613 MacBain Building.

### A CASE OF CONGENITAL LACK OF DEVELOPMENT OF THE RIGHT HAND.

By DUNLAP P. PENHALLOW, M. D., Washington, D. C.

Cases of arrested or of abnormal development in the human body, while of no particular clinical value, are, however, of interest as showing the changes which may take place when there is either arrested or excessive growth of any part of the body.

Any abnormal change in development is considered as a malformation and according to the classification of these abnormalities, as outlined by Hirst and Piersoll<sup>1</sup>, these malformations are grouped with regard to their mode of production as follows:

1. Those produced by variations in growth—either excessive or arrested.
2. Those produced by the defective union of component embryonic parts.
3. Those produced by cleavage (either partial or complete) of the primary embryonal cell masses.

Anomalies due to defective growth may be considered under two heads:

A. Those in which a general decrease in size is accompanied by uninterrupted development.

B. Those in which diminution is dependent upon arrested or anomalous development.

The true dwarfs belong to the first group, while the second group includes many various types of malformations exhibiting all degrees of reduction from a rudimentary finger to a shapeless monstrosity.

These various anomalies are also classified by Hirst and Piersoll according to their type, but as the case which will be described later apparently falls into Class 1, that classification alone will be shown.

Class 1. Single Monsters.

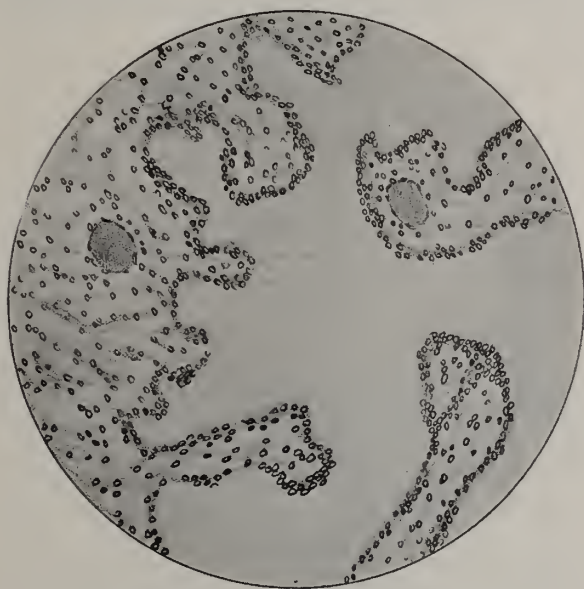


Fig. 3.—Drawing showing microscopic section of the placenta.

mally seen but had a ragged appearance which on closer inspection showed that it was covered with minute finger-like projections with bulbous ends. These vesiculated villae were small, the largest measuring not over 3 mm. in diameter. The membranes and cord showed no changes of note.

Microscopic examination of the placental tissue showed the villae to be enlarged with bulbous ends. The covering epithelium was for the most part intact. The connective tissue stroma was edematous and showed a scarcity of cells. Blood spaces and syncytial

## Order 1. Autositic Monsters.

Genus 1.	{	Species 1.	{	Phocomelus
			Hemimelus	
			Micromelus	
			Ectromelus	
	{	Species 2.	{	Symelus
			Uromelus	
		Sirenomelus		

**PHOCOMELUS:** The distinctive markings in this class are exaggerated shortening and rudimentary development of the long bones of the limbs. The hands and feet may be normal in appearance and appear as though they were attached directly to the shoulders and hips.

**HEMIMELUS:** In this group the lower portions of the limbs are very ill developed or altogether absent. These are apt to be not so distinctive as are the phocomeli as perhaps but one limb is affected.

**MICROMELUS:** Limbs are normal in form but are abnormally small.

**ECTROMELUS:** This signifies an aborted or imperfectly developed limb and there may be present every degree of arrested development from entire absence of the limb to simple shortening. In a typical case of ectromelus there is an entire absence of the limbs. Sometimes small stumps mark the places for the arms and legs. The abnormality may be confined to the upper or to the lower extremities.

Species 2 will not be discussed in detail, but this group is characterized by imperfect development of the pelvis and lower extremities, by more or less intimate fusion of the lower extremities and by twisting of the lower limbs so that the femora are united by the external condyles, the legs by the fibulae, and the feet, if they exist, by the fibular edges and little toes so that the heels look forward.

From the classification and from the description of the different types encountered, the case which is now to be presented falls apparently into Species 1 and in the Hemimelus group.

J. K., a colored laborer, twenty-two years of age, came to the Orthopedic Clinic at Freedmen's Hospital to see if anything could be done to improve the functions or usefulness of his right hand.

**Examination:** Well developed and nourished colored male. No abnormalities other than the right hand were found. Both arms are equally well developed and measurements taken over the ulnar head show the left wrist

to be 6.75 inches in circumference while the right wrist at the same level measures 6.50 inches. The right hand appears as a small rudimentary appendage extending only a short distance below the radiocarpal junction and



Fig. 1.—Dorsal view of both hands. Undeveloped hand on right shows the small rudimentary fingers and thumb with sulci at the end of the fingers in which are small nails.

this appendage is approximately of the same size as is the left wrist. This rudimentary hand is short and thick and presents a rudimentary thumb and four rudimentary fingers. The thumb and each of the fingers are one-half inch in length and apparently have no phalanges, but appear simply as appendages



Fig. 2.—Palmar view of hands showing the rudimentary thumb and fingers.

of skin. At the terminal ends of these fingers and the thumb are small sulci in which can be seen very small rudimentary nails. (Fig. 1.) The skin appears normal on the dorsum of the hand but on the palmar surface it is thickened and slightly calloused. There is



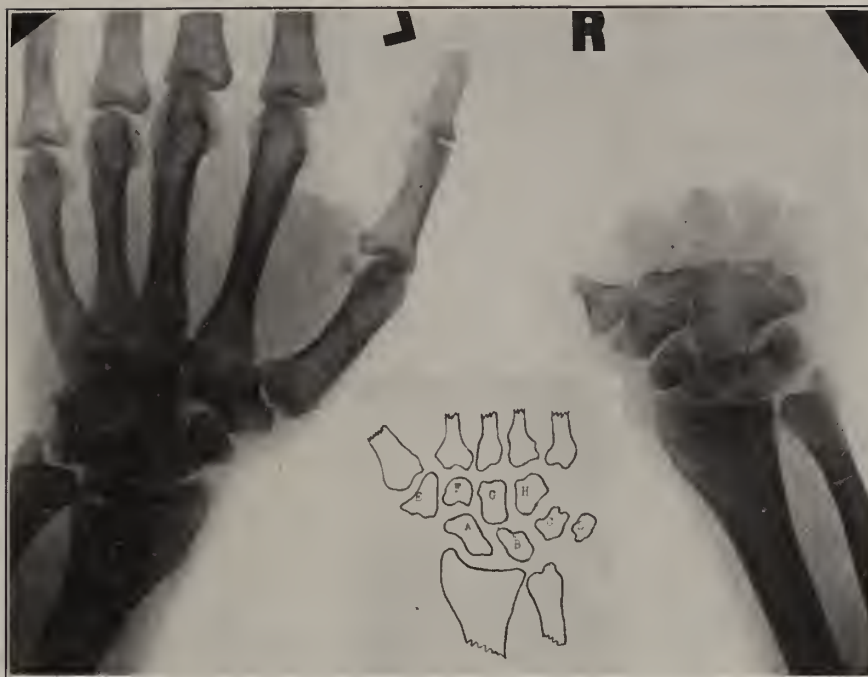


Fig. 3.—X-ray of both hands showing lack of development of the metacarpals and phalanges on the right. On the right only five distinct carpal bones can be made out. The trapezium and trapezoid appear to be fused as do also the os magnum and the unciform. The semilunar and the cuneiform appear as one bone. There is a rudimentary first metacarpal and the heads of the other four metacarpals can be seen. Rudimentary phalanges can be seen at the end of the third and fourth fingers. Insert shows normal carpus for comparison.

Insert:

- |              |               |               |
|--------------|---------------|---------------|
| A. Scaphoid. | B. Semilunar. | C. Cuneiform. |
| D. Pisiform. | E. Trapezium. | F. Trapezoid. |
| G. Magnum.   | H. Unciform.  |               |



Fig. 4.—Lateral view of same hands.

what appears to be a small thenar eminence and also a small hypo-thenar eminence but the palmar surface between these two points is somewhat uniformly rounded. (Fig. 2.) There is apparently a small bone at the base of the thumb which resembles a small metacarpal, but there is no mobility of the thumb. There is no power in flexion or extension in the thumb or fingers, but there is slight power of retraction, suggesting that there has been an attempt to form some of the intrinsic muscles of the fingers and hand. No metacarpal bones, other than the one in the thumb, can be felt, and beyond this point the whole hand or appendage is somewhat rounded except for the small skin appendages which resemble fingers. There is good flexion and extension of the rudimentary hand itself.

The X-rays show no differences in the radius and ulnar on either side; the carpal bones on the right are present but show some apparent fusion of some of the bones, or at least an apparent abnormality. There is a rudimentary first metacarpal and the proximal heads of the other four metacarpals are present, but there are no diaphyses and, distal to these proximal heads, no bony structure is noted until the distal end of the rudimentary fingers is reached and at that point small rudimentary bones which seem to be terminal phalanges may be seen not articulating with any other bones. (Figs. 3 and 4.)

No hereditary history could be elicited in this case and the man stated that he knew of no abnormalities, similar or otherwise, in his family or in his antecedents.

This man does laboring work of a kind, but is much handicapped as there is considerable limitation as to what he can do with this defective right hand. He is able to handle a shovel by using the radial surface of the base of the thumb as a support to guide the shovel while using his left hand and one of his feet to push with. There is enough power of adduction between the fourth and fifth stumps to enable him to hold a nail while using a hammer in the left hand. Beyond these limited uses the rudimentary hand serves no useful purpose.

This case is reported simply as a rather unique and interesting type of anomalous development.

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*The Farragut, 17th and Eye Streets.*

## INFECTIOUS DIARRHOEA.\*

By SAM WILSON, M. D., Lynchburg, Va.

Exactly one week ago today, I was struck by lightning. Dr. Stover called me over the phone and asked for the title of my address for today. I did not think that I would have to fulfil this duty until next November. Now, gentlemen, I have been struck by many things in my life, but never before had I been hit by lightning. It is no wonder that Dr. Stover had to ask me over the phone "What did you say? What did you say?" I suppose I sounded, to Dr. Stover, not unlike the nocturnal cry of a querulous cat, or the plaintive whine of a crouching setter-dog. When I hung up the receiver, I went into a state of abstraction. When my intellect returned to its seat, I repaired to my files where repose some speeches of the yester-years: some of them made at college in the long forgotten limbo. Out of this long forgotten lore, I hoped to resurrect something that would prove today of practical utility. I found there-among nothing but the trite and the commonplace.

Now I have been an auditor on many occasions to speeches by the past presidents of this society. I distinctly remember that some of them impressed me with their sublimity. I felt that you would expect something that would approximate this past standard—something, the memory of which might stand as a lighthouse along life's uncharted shore. What in the world was I to do in this short time? In this connection, I thought I would write something that would regale the fancy of the South Boston doctors, refine the taste of the Danville doctors or correct the manners of the Lynchburg representatives, but, on second thought, I concluded that the first was useless, the second groundless and the last, hopeless. I asked my wife, what in the world was I to talk about. She replied, "Well if you cant' think of anything else to talk about, just talk about a minute." This poignant piece of piquancy but added to my discomfiture. What was I to talk about. Gentlemen, for at least twenty-four hours, this idea was the ghost at the banquet of my poor thought. I at last thought of something that might appear to you ridiculous. But, as you have been accustomed to the sublime in the past, a condescension to the ridiculous might appear to some of you

\*Presidential address delivered before the South Piedmont Medical Society, November 10, 1928.



attractive, so I decided to let you listen in on a soliloquy of mine as I sit by the bedside of a child with infectious diarrhoea, or what is commonly denominated dysentery, and let you overhear what I say to myself as I contemplate the problem before me.

A diaper is before me whereon are the products of inflammation in the form of blood, mucus or, mayhaps, pus. Closely contiguous is a baby with eyes somewhat sunken and cheeks somewhat hollow. How am I going to manage this case? What do I know, and what shall I do? First, I know that it is practically impossible for me to determine what type of organism is causing this disease. I know that there is such a thing as infection from the gas bacillus and allied organisms, as well as infection from the dysentery bacillus and its concomitant invaders, but, for practical purposes, I know I can disabuse my mind of all thought of the gas bacillus, on account of its great infrequency, and can center my entire thought on the dysentery bacillus and its associated invaders, in the identity of the colon bacillus and the streptococcus.

My first thought is, "Shall I purge this child?" I have read somewhere where somebody denied the value of preliminary purgation. I cannot accept this view. I realize, of course, that clearing out the intestinal tract does not remove the organisms that are in the intestinal wall and therefore does not reach the seat of the pathologic process, but I also know that there is a great amount of intestinal detritus in this child, as evidenced by this stool. I know there are products of bacterial metabolism in this child. I know that this intestinal detritus before me consists of shed epithelium and pus, and, furthermore, I know that this detritus presents an ideal feeding ground for the enormous number of organisms found in this stool. Yes, I remember reading where Karl Meyer, in his classic experiments, conclusively proved that, in the presence of the detritus in the dysenteric bowel, the pathologic organisms concerned therein, became more highly active, and took on a more vigorous growth, producing a large quantity of low grade poison. In view of these remembrances, the situation to me is inescapable. I will purge this baby. I will purge him with the time honored remedy—castor oil. Nothing in my whole armamentarium is comparable to

it in point of effectiveness. Nothing sweeps the detritus from the intestinal tract like it does, and nothing is so bland and unirritating. I also realize that two or three ample doses of castor oil in the next week or two will add to the effectiveness of the treatment.

I have purged this baby; now shall I irrigate, and with what? I fully realize that it is impossible for me to use any antiseptic solution in this child's bowels strong enough to have any appreciable action on the intestinal wall or the bacteria therein without running a serious risk of poisoning the baby. However, I remember that many a time have I seen the distressing symptoms of tenesmus associated with a case like this. I know this tenesmus comes from a proctitis, and I know that this proctitis is often induced by excessive acidity of the colon contents, so I will try to forestall this tenesmus. I will irrigate this child with a 10 per cent solution of bicarbonate of soda. I expect the bicarbonate of soda to neutralize the acidity—the neutralization of the acidity preventing the proctitis, and this in turn preventing the tenesmus. So I think it an excellent thing to follow the purgation with a copious high enema of a 10 per cent solution of bicarbonate of soda. I have another object in irrigating this child and that is to cleanse the colon of detritus. I shall not repeat this irrigation more than once in twenty-four hours and, if it disturbs or depresses the child unduly, I will stop it instantly.

I have purged; I have irrigated; now shall I starve this child? Is a period of starvation essential now? May be there has been voluntary starvation for the last day or two, or may be the starvation has already been enforced. If the child has not been starved, I know it is good practice to withhold food for twenty-four hours. I know, of course, that while young children like this patient stand temporary starvation well, they cannot get along without water. I must give this child water forthwith and give it freely throughout this sickness. I know that the alpha and the omega, the very quintessence of the treatment of a case like this, is the supplying of an adequate fluid intake. I know I can give this child plain water sweetened with saccharin, barley water or weak tea. I know that supplying an adequate amount of fluid will be the very sheet anchor of treating this case. If I

give this child water by mouth and it initiates peristalsis, and increases the number of stools. I will not allow that to intimidate me, certainly not at the present moment.

I know I can minimize this tendency to increased peristalsis by giving the water at body temperature and by incorporating it in an infusion of tea. I am fully alive to the fact that on the morrow the frequent evacuations and loss of fluid by bowel may be so threatening as to force me to withhold water by mouth. I must then be prepared to inject fluid under the skin or into the peritoneal cavity. The use of proctoclysis in this case is out of the question on account of the irritability of the bowel.

I have purged, I have irrigated. I have starved for twenty-four hours. I have considered well the imperativeness of keeping up the fluid balance—now what shall I feed this child? I must try to conserve his strength units and maintain the integrity of his vital organs by proper nourishment. What food may I use with advantage? In this connection, I am cognizant of one thing. I know the dysentery bacillus has a vulnerable spot, and that is his teeth—he has a sweet tooth. He is what, I remember, my professor used to call a facultative organism. I remember that means that he can live on either sugar or protein, but I know he loves sugar and will consume the last grain, trying to satiate himself before he will attack any protein. I also remember that when he eats sugar, he liberates products that are harmless to the child, though at the same time fatal to himself—that is, he produces lactic acid from disintegrating sugar. Lactic acid is an inhibitor of his growth. He cannot live very long in an acid media, so I am going to take advantage of these facts and gormandize him with sugar. While I must start giving carbohydrate at once, I must not expect the symptoms to subside at once. I must be patient because I know that, notwithstanding a carbohydrate diet, the dysentery bacillus will excrete certain endo-toxins which are injurious, and he will form these endo-toxins until he is dead. The carbohydrate diet will inhibit his growth and, finally, with the assistance of nature's defensive forces, succeed in exterminating him. What is true of the dysentery bacillus, is also true of the streptococcus. What form of carbohydrate shall I give this child? Lactose milk sugar is prefer-

able because it is broken down more slowly during the process of digestion and is present in the intestinal contents longer and farther down; also, it is claimed, a larger proportion of lactic acid is formed from milk sugar than from any other sugar. I will give him a 5 per cent solution of milk sugar, frequently repeated. It is better to give it frequently, in small amounts, at short intervals, than in larger amounts at longer intervals, because, in this way, a continuous supply of lactose is brought to the intestines. In a day or so I will start him on cereal waters, thus continuing the carbohydrate medium, and a little later will give him cereal jellies (arrowroot and barley particularly) and will give him chicken, beef or mutton broth, albumen water and a small quantity of buttermilk. I realize that I must give him some protein inside of a week to prevent excessive protein waste, but I will be very careful not to give so much protein as to neutralize the action of the carbohydrates. I shall be very careful to stay away from potato, on account of the peculiar character of its starch capsule, rendering it difficult of digestion. It has been very often responsible for relapses.

I have purged; I have irrigated; I have starved for twenty-four hours; I have maintained the water balance; I have fed after the scientifically approved method. Now, what drugs are of value to me here? I know that innumerable drugs have been used in the acute stage, most often unwisely. I have used them before in the acute stage and tragedy has followed in its wake. This is one of the many things that I have done in my life that I have since learned was foolish. At this moment, I will not forget the lessons of a regretted past. In the acute stage, I will use nothing but the time-honored remedies, either castor oil or diminutive amounts of calomel; the former is to be preferred. By no means, will I let the giving of drugs divert my mind from more important therapeutic measures.

The thought occurs to me to give this child<sup>a</sup> an intestinal antiseptic; salol is very popular. I do not believe it is possible for me to give this child large enough doses to have any antiseptic action on the pathogenic bacteria without poisoning this baby. But, suppose I can do this; how in the world am I to know that this antiseptic action will not be exerted on



the lactic acid bacilli as well as on the dysentery bacilli? I am very anxious to conserve the life of the bacillus acidophilus and other lactic acid organisms. I know that they are antagonistic to the pathogenic organisms, but, granted that I can give enough intestinal antiseptic to inhibit the growth of the pathogenic organism, why will not its action be exerted on the autogenistic bacilli as well? Reason says that it would, so I will not give an intestinal antiseptic. Then I think of bismuth and how often I have used it before in the subacute stage. It has a wide reputation. Will I use it in the subacute stage with this child? I will, because the best information I can get is to the effect that it acts as an inhibitor of bacterial growth on the intestinal wall, promoting healing and diminishing peristalsis. I also think of giving Dover's powder with this bismuth. The thought occurs to me only to be condemned. I do not mean to condemn the giving of opium, but only the giving of it with any other mixture. It should always be given alone. I know some clinicians vigorously oppose the giving of opium. I know without question that this drug has been more abused than any other drug. I would not entertain for a moment the thought of giving any derivative of opium for dysentery during the stage of intoxication and high fever, but, properly used, it is the most potent weapon I have to check the excessive number of bowel movements in the subacute stage of this disease. It is invaluable to procure rest and to soothe the over-irritated nervous system of this child. I fully realize that no single therapeutic measure, except the maintenance of water balance, is more effective in the treatment of this case than the obtaining of tranquil repose for this child; therefore, I will judiciously use one of the derivatives of opium.

I know, on the doctrine of chances, if I observe these conceptions and stay away from sweet milk in any form for several weeks, I will rescue this child. I will be ever alert for one complication—that is the precursor of impending dissolution, unless I fail to recognize its earmarks. I see in the future this complication that causes me to tremble for the safety of this child. A week or two hence, I see this child with deep rapid breathing, tossing aimlessly to and fro. I know what this means. I know it means forced ventilation of

the lungs with impending acidosis. I know it means that the winds of that unknown clime will soon blow across a little face unless I act and act quickly. No treatment will succeed now unless I establish the fluid balance of this child. This is far more important now than the giving of glucose. I must at all hazards restore the blood volume and replace the water loss by the tissues. I will give this child immediately normal saline solution subcutaneously or intra-peritoneally. After I have done this, I will give him an ampoule that I carry with me at all times during the heated term—an ampoule of glucose. I expect I will give it to him concentrated, just as it is, putting it under the skin. I will not dare to put it in the peritoneal cavity. I am mortally afraid of putting anything in the peritoneal cavity except salt solution. I have not always felt this way, for I have provoked some near catastrophes by my bravado, but I thank a kind fate that I have not killed any child by the intra-peritoneal injection of glucose, though I have come dangerously near it. The anxious moments and sleepless hours that have fallen to me as a result of this therapy will not be forgotten. I will give this child from four to eight ounces of normal saline under the skin and will repeat it as soon as the first injection is absorbed. I will watch closely for an increase in the amount of urine, for I know that improvement will begin coincidentally therewith.

### SPONTANEOUS FECAL FISTULA THROUGH THE ANTERIOR ABDOMINAL WALL—RE- PORT OF A CASE.

By  
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and  
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Spontaneous perforations of the intestine occur internally and externally. Rupture of intestinal contents through the abdominal wall establishes an external fecal fistula and may result from a number of causes. DaCosta<sup>1</sup> quotes, Senn, and enumerates the causes of this accident as "wounds, injury of the intestines, intestinal ulceration, intestinal strangulation, foreign bodies in the intestinal canal, malignant tumors, actinomycosis, pelvic and abdominal abscess, appendicitis, injury of the bowel during an abdominal operation, the application of ligatures, catching by sutures, and

the employment of drainage tubes." Deaver,<sup>2</sup> in reporting one hundred cases of fecal fistula, claimed that 82 per cent originated from the appendix. Three per cent of his cases were due to strangulated hernia. Haggard,<sup>3</sup> in 1918, reported five cases of fecal fistula following strangulated hernia, and Johnson,<sup>4</sup> in his *Surgical Diagnosis*, records another case.

The subject of this report was a widow, aged 69, who gave a history of acute peritonitis, operated upon more than thirty years ago. Soon after this operation, an abdominal hernia developed immediately above the transverse line of incision. This quickly attained considerable size. However, a stout abdominal binder kept it satisfactorily reduced. Several years later, vaginal hysterectomy was performed. Persistent vesico-vaginal fistula followed. At the time of her examination, the patient was a rather obese woman with a large ventral hernia, complaining chiefly of weakness and periodic attacks of diarrhea of long duration. Aside from this, she showed little except a blood pressure of 180/100, and a faint trace of albumin in the urine associated with a fair amount of pus.

The patient was followed for two years without noticeable change. She then began to show a temperature varying from 99 to 100 degrees, and a persisting looseness and frequency of the bowels. After three months she had lost considerable weight, and began to complain of abdominal pain. A hard abdominal mass the size of a fist was now first noticed adjacent to the old laparotomy wound, blood occurred in the stool, and it was thought she had a carcinoma of the intestines. She was put to bed and for three more months exhibited distressing diarrhea, abdominal cramps and occasional vomiting spells. Weakness, loss of weight and appetite, and small daily rise of temperature marked the progress of her disease.

Greater abdominal soreness now developed, localized to the right side of the hernia sac, and a red, somewhat indurated area, the size of the hand, appeared. The next day, there was a sudden gush of fecal material through the abdominal wall at this point, and her pain was immediately relieved. At this time, a very small opening, through which gas and fecal material were bubbling, could be made out, but the adjacent abdominal wall was bluish and appeared quite thin. Very shortly, this whole area broke down into a sloughing,

gangrenous wound, discharging continuously offensive material. The patient suffered no more pain but gradually grew weaker and, in about six weeks, died.

Autopsy, which was limited to the abdomen, and done after embalming, showed, in addition to the large, purulent excavation in the anterior belly wall, two extensive sloughing sinuses extending under the abdominal wall, one to a position just over the bladder, and the other pointed in the right iliac region.



Ventral hernia with adjacent fistulous opening through abdominal wall.

The hernial sac contained healthy looking intestinal coils bound together by numerous adhesions. One loop of small intestine in the sac connected with the sloughing sinus extending through the abdominal wall. A large, firm, adherent mass filled the pelvis, in which the intestines were incorporated. The ascending, transverse and descending colon were free.

Summary.—A woman of seventy-one, with a long-standing ventral hernia, for six months showed progressive symptoms of fever, diarrhea and abdominal pain, weakness and loss of weight, and a hard, palpable intra-abdominal mass. There was then the sudden occurrence of a spontaneous fecal fistula through the abdominal wall. The autopsy revealed that a gangrenous knuckle of small intestine had probably sloughed through the abdominal



parietes, but not before two other sinuses had begun extensive dissections subcutaneously in the parietal wall.

The case here reported is unusual because of its gradual onset, unaccompanied by the classical signs of severe pain, vomiting and constipation. Diarrhea, which had persisted for six months, was not altered during the few days preceding the perforation; there was no real vomiting, and the pain was no greater than what had been experienced for months. The obstruction which occasioned the gangrene of gut and abdominal wall was evidently slowly progressive, and the clinical picture of an acutely strangulated hernia was completely obscured.

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### THE SOCIAL ASPECT OF MENTAL ABNORMALITIES AND THE PROBLEM OF EUGENICS.\*

By ALFRED GORDON, M. D., Philadelphia, Pa.

Under the term of mental abnormalities, I propose to comment briefly upon a very large field of deviation from normal in the psychic sphere. The lowest forms of intellectual development will be considered first. Gradually the higher normal types will be mentioned. Next in order, I will describe the irregular psychic forces in the psychopathic individuals, which manifest themselves in a great variety of abnormal phenomena. Finally, the great problem of insanities, with their causes, will be given due consideration. Such a study will logically lead us to the subject of prophylaxis or prevention of mental abnormalities, and consequently to the problem of eugenics.

In considering all varieties of mental deficiency, we find a long scale, beginning with mental monstrosities and ending with slight feebleness. When the intellectual powers are involved in their entirety, we deal with idiocy. When the arrest of mental development is only incomplete and is, therefore, compatible with the existence of some intellectual manifestations, we deal with imbecility. There are

also those in whom only certain powers are likely to reach a degree of development; in whom there is no general, but only partial defect of intellectual powers. For example, one shows a meager power of intellectual acquisition; in another the power of judgment is defective; another is incapable of acquiring elementary mathematical knowledge; in another the power of attention remains very elementary; others show a marked poverty in the power of reasoning, of generalizing, of abstracting, of memorizing, of associating ideas. This category of individuals manifests a conspicuous inequality of development of various intellectual powers. The complete absence of intelligence, of moral conceptions, of sensibility, places an insurmountable obstacle between idiots and the exterior world. Education has no hold on them, impressions leave no trace in them. Instinct alone guides their actions and their relation to others. Their life is reduced to an automatic execution of vegetative function.

In imbecility we find rudiments of intellectual and moral development. The intellectual niveau is somewhat higher than in idiots which, therefore, permits certain acquisitions. With considerable amount of patience, perseverance and ingenuity, one may succeed in training imbeciles in certain moral principles. In spite of all efforts one can expect but a certain degree of mental development in an imbecile. His language remains poor as to the number of words; his articulation is defective; his expression indicates poverty of thought, the character of his acts corresponds to his manner of thinking. In the sphere of morality he exhibits instinctive tendencies of a low order. Cruelty, vanity, gluttony, masturbation, sexual perversion, excesses of all kinds, cowardice, unusual irritability are all characteristic of imbeciles, and these characteristics lead frequently to all sorts of abnormal acts. Theft, arson, brutality, homicide are not uncommon in imbeciles.

Following up the intellectual niveau one step higher than in the imbecile, we enter the domain of the large group of mental feebleness, the study of which is of considerably higher importance from sociological and legal viewpoints than of that of idiocy and imbecility. Here we meet with a great many varieties and sub-varieties, and the transition of one into the other is imperceptible. This is the most important chapter in the study of

\*Address delivered before the S. E. Branch of the Philadelphia County Medical Society.

mental deficiency, as the number of such individuals is legion. We find them with us frequently, we deal with them in innumerable transactions, we find them on school benches, as well as in business life. Their relation to the community frequently results in harm. This group presents, speaking generally, a mentality inferior to the normal in quantity and quality. Their intellectual development is both delayed and reduced. The slowness of mental evolution and its lesser amplitude are characteristic. Thus, for example, the intelligence of a boy of twelve resembles that of a child of five.

In view of the enormous influence of intelligence upon the shaping of the normal personality, the resulting moral debility is to be expected. It is a common observation that, apart from idiocy and imbecility, one of the chief characteristics of the feeble-minded is an obtuseness of conscience. The elements of the latter are too feeble in the struggle against passions. It may happen that the mentally deficient has some conception of right or wrong, he may feel that he does wrong, but he does not possess the aversion which would be characteristic of a normal person. The cause of this disorder lies in the incomplete development of moral ideas. The want of judgment, of will, the weakness of character render the moral personality of the feeble-minded unstable, not resistant, and thus they become an easy prey of their passions.

The majority of the symptoms referable to the deviations in the moral sphere gravitate around the ego of the mentally deficient. Thus, the ego becomes extravagantly accentuated. The mentally deficient individuals have no other thoughts but of themselves. Nothing moves them, nothing disturbs them, except their own disturbances, which they immeasurably amplify. Such a psychic orientation naturally leads to a dominating attitude and intolerance. Envy or jealousy is another derivation of egotism. Jealousy creates defiance and doubt; anger and hatred are the next consequence of jealousy. The mentally deficient may develop a hatred towards the dearest and the nearest. As egotism is the predominating characteristic, there is absence of altruistic sentiments.

Among other typical features of mentally deficient individuals may be mentioned impulsive phenomena. They are spontaneous and involuntary psychic manifestations. Nor-

mally our acts are controlled by two factors—desire or an impulse for action on one hand, and reasoning on the other. The latter controls and inhibits the former. When the intellect is impaired or defective, the impulse predominates and the desired act is executed, no matter how deleterious it may be; in such cases, we observe frequently sudden impulsive acts in which neither reasoning nor will-power intervene. In some cases the mentally deficient may yet attempt to reflect upon his premeditated act; he may yet appreciate the immorality and criminality of an illegal act, but the appreciation and meditation are not profound enough to overcome the instinctive tendency and the person succumbs to the latter. Morbid impulses may be manifest not only in criminal acts of a gross nature, but in minor acts. The tendency to excesses is commonly observed in these cases.

In mental defectives, besides a certain degree of intellectual inferiority, there is particularly an inherent deficiency of inhibitory power. The whole life of mental defectives is composed of incidents of an instinctive nature, as the instinct predominates in them, and, therefore, their actions are invariably the result of mental activities. The impulses are no more under control of the cerebral centers, which ordinarily regulate our actions; but they exercise their influence on the motor sphere by producing an excessive activity. In such cases naturally there can be no choice of action; each movement is the immediate result of sentiment. The acts are unconscious; they must be executed, because they are out of the field of struggle which normally exists between reasoning and passion. The acts are, therefore, mechanical, automatic, and of a reflex nature.

Besides the mental defectives, there is another class of individuals with abnormal mentality. Although they could not be considered as defective and not as insane in the strict sense of the word, they are, nevertheless, different from normal persons by their power of reasoning, by their sentiments, tastes, sympathies, etc. To this class belong the large category of psychopathic individuals.

Under the term of psychopathy is understood a pathological state of an individual, whose psychophysical resistance is constitutionally diminished; in other words, it is a condition which is a deviation from the normal type of humanity. In such a person



there is an interruption of harmonious equilibrium existing between various functions of cerebrospinal centers; the co-operation and adaptation of these centers are incomplete. There is an ataxia of thought, of sentiment, of will, of psychomotor functions. According to the elements involved, these patients form several groups, which are only apparently different from each other, but under which is hidden the same individuality.

The most important characteristic features in psychopathic persons are found in their psychical sphere. The development of their intellectual faculties is not defective, but irregular, and there is a want of equilibrium in these faculties. Such patients are only partial, incomplete beings. They may have a remarkable memory, but they cannot fix their attention. Their mental instability is sometimes extreme. At the same time they may be eccentric, dreamers, with romantic tendencies. They are emotional, timid, haughty and may be affected with moral perversity of the gravest nature. The best illustration of the loss of psychical equilibrium is found in the psycho-neurotic phenomena, which develop with the greatest facility in psychopathic persons. Among them, obsessions and morbid impulses are the most striking.

What is an obsession? Normally an idea, a sentence, an image may unexpectedly invade our mind and obstinately persist. It is sufficient, then, to exercise our will to a certain extent and make this phenomenon disappear. This, so to speak, physiological obsession, never leads to a morbid impulse. When a morbid obsession occurs, the cerebral centers are involved by a certain image or idea, which remains fixed and suppresses subsequently all antagonistic images or ideas. This is accomplished not without a struggle, but the tenacious idea is accompanied by a moral pain so intense that it subordinates the will, and the individual, perfectly conscious of what is going on, but powerless, finds himself irresistibly forced towards acts of which he himself disapproves. The obsession leads to an impulse, and these two phenomena are in the same relationship as a thought to the act. The following two examples will suffice to illustrate the psychic status of this category of mental abnormalities.

A young woman of thirty-five, who was profoundly psychopathic, whose heredity was the most unfavorable (father syphilitic, mother

alcoholic, a grandfather had paresis), had several miscarriages accompanied by tremendous losses of blood. Her recovery was of long duration. Soon there developed morbid impulses. Being a butcher's wife, she assisted him in carving meat in the shop. On several occasions, while handling the large knife, she felt a desire to cut off the customer's head. She realized her condition, she struggled with herself, resisting the torturing temptation. Finally, once, in the presence of several customers, she began to scream; the knife fell out of her hand; trembling she begged them to remove the knife from her sight, as otherwise she would commit murder.

A young pharmacist, who has been under my care for the last two years, has frequently the almost irresistible desire to commit suicide. He is fully conscious of his condition, fights it often at the expense of his sleep. Once riding on a boat he felt the necessity of jumping overboard. Fearing for himself, he begged the passengers to tie him to a post and keep him in this position until the boat landed.

Obsessions and irresistible impulses may affect also crimes of a less important order. In kleptomania there is an irresistible impulse to possess objects which are of no value. This is frequently done by those who are otherwise perfectly honorable, and who possess sufficient means. They are perfectly conscious of the criminality of the act, and of the consequences to which it may lead. They struggle against this tendency: they suffer morally, but they finally succumb to the irresistible impulse. Arson, assault, rape, all varieties of sexual perversion, may be committed by a psychopathic individual under the influence of an obsession.

What is the outlook in obsessions with irresistible impulses? The evolution of these symptoms presents nothing typical. It may be periodical and intermittent. Sometimes it appears for a short period and disappears completely. In other cases it is slow, remains stationary for months and years. In still another series of cases the symptoms disappear, but recur from the least cause. As Magnan has well said, "They are incorporated in the mental state of the individual, and never become separated from him. Appearing now and then during his life, they never undergo modifications: they are always the same."

On the basis of our conception of the subconscious world the phenomena under discus-

sion find an adequate explanation. The rôle of pathogenetic forces in the causation of psychoneurotic manifestations by the psychanalytic school is pretty well established. As the aim of this contribution is not the psychological aspect of the psychoneuroses but their sociological value, the analysis of the mental processes and of the conflict between the conscious and subconscious ideas which leads to the formation of obsessions and impulsive tendencies and other mental disorders characteristic of psychoneuroses will be omitted.

On the foregoing pages we have discussed psychopathic individuals whose chief characteristic is a strong susceptibility to abnormal mental phenomena. The latter may be not only of the psychoneurotic variety, such as obsessions, anxiety, etc., but also of genuine psychotic type. Such individuals are perpetual candidates (figuratively speaking), for manifestations of a strongly pathological character, and under the influence of potent factors may cross the border line and develop genuine psychoses.

It is not the aim of this address to enter into a full discussion of the very large domain of mental affections, but the intention is to indicate hastily in a few general lines the fundamental disorders which characterize insanities. Our chief object is to lay emphasis on the grave problem of prevention of mental abnormalities of all kinds and to present a general outline of eugenic endeavor.

Psychoses are characterized essentially by disturbances in ideation, in perception, in affectivity, in personality, in consciousness and, finally, in activity. The extent to which each of these elements is involved, the implication of some and the integrity of others, the interrelation between them, the influence of one of them upon the other, are all factors in the formation of the great variety of psychoses. It is not my desire to discuss them from the academic standpoint, as such an attempt will serve no purpose at present.

With these preliminary remarks, let us approach the subject of prevention. Whether we deal with mental deficiency or psychoneuroses or else with psychoses, there is one particular causative element among those mentioned above that stands out prominently, namely, heredity. Statistical and experimental studies, as well as careful clinical observation, prove this irrefutable axiom that

an individual invariably bears evidences of tendencies acquired through the germ-plasm of his parents. The character of predisposition is determined by the presence in the spermatatic or ovarian cells of concrete hereditary factors which determine the hereditary transmission. Heredity is the cause of the causes. In a study made several years ago, especially from the standpoint of etiological incidents (Proceedings of the American Medico-Psychological Association, April, 1916), the writer was able to arrive at the conclusion that in the outbreak of mental disorders in the form of psychoneuroses or psychoses, etiological incidents of an emotional character immediately preceding them play a conspicuous rôle, since they have a powerful influence on the affectivity and through the latter on the formation of ideational complexes. Mental disorders occur in consequence of factors which are capable to influence the feeling-tone of persons whose mentality is potentially unstable by reason of a hereditary morbid predisposition. In such instances, the exciting element may not necessarily be of a strong character. Even slight emotional occurrences may be the point of departure of psychotic manifestations in a hereditary predisposed individual. In the above mentioned study one finds etiological factors of an affective character. Affectivity is the fundamental basis of the personality. It controls our actions, and, as Bleuler says, we act only under the influence of pain or pleasure and effects produced by them maneuver our logical reflections. A. Godfernaux, in his book, "*Le sentiment et pensée*" justly remarks that logic of sentiment conforms more to the deep necessities of existence than cold and rational laws of association of ideas; the affective state is the dominating force; the ideas are only its subjects. Yung goes still further by saying that the strongest ideas that have the firmest hold on the personality may be totally inhibited by the effects, and the stronger the effect, the more promptly disturbances will be created in thought and action.

Among the emotional incidents playing a stimulating rôle in the development of psychotic phenomena, the following may be mentioned: Disappointments of various sorts occurring against all expectations, sudden state of anxiety from any source, sudden fright, loss of fortune or of ordinary means of livelihood, sight of mutilated beings, seances of



hypnotism or of spiritualism, adverse results, unemployment, privation.

Physiological as well as pathological causes may commence a mental disorder, but most frequently in individuals hereditarily predisposed. Persons of a pathological make-up are inevitably prepared to develop psychic disorders at any period of their lives; the soil is there, it is only waiting for an exciting cause such as were mentioned above. Herein lies the problem of prevention of psychic collapse.

In considering the subject of prevention, it is well to bear in mind not only the above described etiological factors, but also some important exogenous causative elements. Mental disturbances may follow infections and intoxications. Syphilis plays a very important rôle. If we consider its effects on the central nervous system with the result of a very large number of cases of tabes, paresis, specific headache, specific palsies of central or peripheral nature, even as far as the third and fourth generation; if we further bear in mind that syphilis may produce various mental phenomena simulating the classical psychoses (see *Psychoses Other Than Paresis in Syphilitics*, *Journal of American Medical Association*, October, 1917), we will be in possession of facts which belong to the preventable category.

Tuberculosis is another affection which through its toxi-infections elements exercises a profound influence on the intellectual spheres. It belongs to the preventable class of affections. Alcohol and narcotics produce a deleterious effect on the nervous system and on the intellectual processes. They lead to a progressive mental degeneration, especially in individuals sprung from a neurotic stock. Literature is abundant with examples of this character. (See *Journal of American Medical Association*, 1907, and *Dominion Journal*, 1909). It is therefore evident on what lines our preventive activity is to be carried out.

On the first pages of the present study, particular emphasis was laid on the chief characteristics of mental deficiency. It was pointed out that there is an inherent intellectual inferiority combined with an inherent deficiency of inhibitory power, that the whole life of mental defectives is composed of incidents of an instinctive nature, that their personality is characterized by an incapacity of being influenced, by lack of discretion, by strong criminal propensities, life-long instability, unsocia-

bleness, exaggerated self-esteem, vanity, egotism, complete want of ethical or altruistic ideas and impulses, unconsciousness of justice and morality, and that the ethical shortcomings render them useless as members of society.

If one considers the facts that according to the latest statistical investigations only five per cent may prove capable of earning the minimum of maintenance, that a great many after several attempts at becoming wage earners fall back into the class of unemployed, and that mental defectives require life-long control, that such control must be provided by the community—if all these facts are seriously considered, one must admit that the mental deficiency problem is one of the gravest and most difficult social problems. Prevention is the most fundamental solution of the difficulties and it should commence first of all with the consideration of the data supplied by the problem of heredity which has a great deal to do with the development of these defects. Prevention of marriage is indicated for individuals whose family histories reveal the presence of psychotic disorders and whose personal histories reveal the existence of diseases of a degenerative character, such as lues, alcoholism, etc. (see above). Sterilization of mental defectives is the other important measure in our endeavors of combating propagation of unsocial or undesirable species.

From the foregoing remarks we are thus gradually led to the consideration of the principles of eugenics. As the name implies, eugenics means regulation of reproduction of a superior race based fundamentally on the principles of heredity. This can be accomplished by a proper mating of parents who, scientifically investigated, present no conspicuous anatomical or physiological defects. The second eugenical measure in our efforts to preserve a more or less normal community is to interfere with the propagation of the mentally unfit.

That the rôle played by heredity is enormous, all are agreed. It is, therefore, urgent to direct our energies to the prenuptial conditions. Legislation in that direction is essential, but in order to obtain laws which require profound changes in old time customs, it is necessary to alter public opinion. The latter can be accomplished by making the public understand the laws of heredity and the fundamental principles that since the home constitutes an essential element of

the foundation upon which our social structure has been built, it is important that the elements of the community called "home" possess healthy and normal characteristics. To disseminate this knowledge in the interest of eugenics among the masses, it is advisable to address oneself not only to the mature, but also, and particularly, to the youth during the school age, in order that the latter be qualified to apply this special knowledge to the subject of marriage which is, of course, characteristic of early life. Diffusion of specific knowledge is essential to the progress of eugenics.

The problem of race betterment embraces two fundamental elements of eugenics, namely, the knowledge of the laws of heredity and sterilization of the mentally unfit. The beneficent results of education in that direction are too obvious to dwell upon. Such an enlightenment constitutes the chief if not the only resource upon which dependence may be placed for progress in eugenics. The question naturally arises, how and by whom should this education be carried out? These practical questions are of a sociologic dimension. They require special elaboration and in extensive dimensions.

The object of this address was merely to make a few comments and to call attention to a problem which is extremely vast in its practical applications. To present it in all its ramifications will require a separate volume. I have endeavored to present the subject of mental abnormalities from a practical standpoint. I have succeeded only to give an outline of mental deficiency, of psychoneuroses and of psychoses. My object was solely to emphasize the relationship of the subject to the problem of applied eugenics. Many features of it have not been dilated upon sufficiently for want of time and space.

Many a page could be written on mental hygiene which is a derivative of eugenics. A great deal, for example, could be said of the so-called "nervous child." The latter may not be mentally defective, nor insane, and still present peculiarities of disposition, of temperament, of the mode of thinking, and feeling, all of which denote a special make-up which, under the influence of a more or less great stress later in life, especially at the age of puberty, is likely to undergo a psychic collapse. Here is a great task for the hygienist to undertake, namely, how to proceed in order

to bring about the proper development of such a nervous subject from infancy to manhood or womanhood. The hygienist's task is to consider the child's development in infancy, in second childhood, during puberty, during adolescence—otherwise speaking, at different periods of life, each with its special physiological requirements. The future member of the community is the product of proper or improper, of normal or abnormal orientation and utilization of those peculiarities which constitute "the nervous child."

Eugenics, mental hygiene are based upon profound knowledge of physical and psychological forces which control biological units. Recognition in childhood of characteristics which point to mental disorders in the future, the establishment of mental clinics for their early recognition and, therefore, for efforts in prevention, and, finally, the practical application of such a research to the management of delinquency which is intimately connected with and is frequently a direct corollary of mental disorders—are all problems within the scope of our thesis.

If we consider the fact that, at the end of the year 1927, there were in this country approximately 250,000 patients for mental diseases cared for during that year at a cost of \$50,000,000, that in the same year one death in twenty-two of the whole adult population in the State of New York occurred in a hospital for the insane; if we consider the fact that there are in the United States at least 500,000 mentally deficient, that each year in this country alone about 500,000 mentally disordered, mentally deficient, or unstable, pass through courts into correctional institutions, if we acknowledge all these facts, the magnitude of the problem is certainly striking. The entire subject in all its ramifications is extremely vast and too extensive for one discourse.

1812 Spruce Street.

### UNUSUAL CASE OF A GIANT MECKEL'S DIVERTICULUM.\*

By JAMES A. CAHILL, JR., M. D., Washington, D. C.

Meckel's diverticulum is one of the uncommon manifestations of the intestinal tract which occasionally presents itself to the clinician or surgeon. The clinician rarely diagnoses it, and the surgeon only finds it in his careful perusal of the peritoneal cavity. It

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has not received the attention that its gravity would seem to warrant.

Knowledge of the existence of Meckel's diverticulum dates back to 1698 when Fridrik Ruysch, the anatomist, spoke of it and illustrated it in 1701. Littre observed it in 1770 when he described an inguinal hernia containing a diverticulum. The first accurate description, however, was made in 1808 by Johann Freidrich Meckel and published in 1809, and named after him for the first time in 1812. It consists of the intra-abdominal portion of vitelline duct which should normally obliterate about the seventh week of fetal life, the atrophy beginning at the distal end and progressing usually until the lumen of the ileum is reached. The factors behind the stimulation or lack of stimulation leading to the obliteration of the vitelline duct are, of course, unknown.

The vitelline duct connects in the early human embryo the umbilical vessel or yoke sac with the mid-gut. The artery and two veins which accompany this duct normally disappear entirely except that portion which becomes the superior mesenteric artery and veins.

The duct and the vessels may persist as a cord attached either to the umbilicus, the abdominal wall, the mesentery or any other organ, or remain free at the outer end, while the intestinal opening is most always at the point on the circumference of the small bowel opposite the mesentery. It is, of course, always single. It may arise from any portion of the small intestine below the duodenum, but the usual location is about 2 to 3 feet above the ileocecal valve and very rarely beyond this. Diverticula of the duodenum and multiple diverticula of the bowel are of an entirely different origin. The diverticulum may have a mesentery of its own. It is possible for the duct itself to be obliterated, leaving the vessels as one fibrous cord, or there may be two separate cords. It is a tiny projection in the wall of the small intestine or a glove-finger-like protrusion of a few centimeters up to 40 centimeters in length. In a case reported by H. H. Moll in the *British Journal of Surgery*, July, 1926, the specimen was 33½ inches in length and was in an infant of five months. In shape, it may be conical, bulbous, hammer-shape, spherical or elliptical. Its walls consist of the normal coats of the small in-

testine. A number of cases are recorded where true gastric mucosa is present in the diverticulum, and accessory pancreatic tissue has been found. The external anatomical evidence of Meckel's diverticulum may be an unusual puckered umbilical scar with a fistulous opening. As a result of the above embryology and developmental anatomy, the adult possibilities are as follows:

1. A complete canal from the small intestine to the skin surface through which a large or small amount of fecal matter may be discharged.

2. A canal that is open at the umbilical end only.

3. Canal closed at both ends.

4. Canal open at the ileum only, distal end being free or attached by a cord to the abdominal wall.

5. Band or cord consisting of umbilical vessels plus the above canal possibilities.

6. Band or cord only.

Evidence as to the incidence of Meckel's diverticulum is quite variable. Coley and Fortium report 18,000 autopsies that had but 15 instances of Meckel's diverticulum. Balfour reports the finding of Meckel's diverticulum in fifteen of 10,600 laparotomies. The consensus of figures show three males to one female have this congenital anomaly. Munford, in 1914, says that 6 per cent of obstructions are caused by pathological changes in Meckel's diverticulum. This is evidently too high when we consider the many other causes of intestinal obstruction. The age incidence for the development of complications runs from a few days to fifty-eight years. The average age is thirteen years, and 50 per cent of the pathological cases were in patients under ten years. The complications may be grouped, according to Palmer, as:

1. Obstruction due to bands, cords, adhesions, volvulus intussusception, etc.

2. Inflammatory.

3. Hernia into the inguinal or femoral canal.

4. Opening onto the abdominal surface.

5. Perforation of ulcers or foreign bodies.

6. New growths, as myoma or sarcoma.

7. Diverticula associated with other diseases, chiefly acute appendicitis.

Cases of Meckel's diverticulitis are seldom diagnosed as such, due, first, to the relatively small number of cases encountered, and, secondly, to the close resemblance of the symp-

toms to those associated with perforation, appendicitis, or intestinal obstruction.

The usual symptoms of Meckel's diverticulitis are sudden onset, with a condition that is alarming from the start; tympanites is marked, pain is sharp, the abdominal wall is tense and, unless quickly relieved, complete intestinal obstruction, fecal vomiting and collapse occur.

*Symptomatology.*—The symptoms produced by these various pathological conditions may be very variable, presenting different signs according to the form of complication. In a general way, the symptomatic points that might lead one to suspect a Meckel's diverticulum are:

1. The first decade of life, with a possible history of such an anomaly in the family.

2. Frequent attacks of indefinite pain in the abdomen.

3. Vomiting.

4. Umbilical fistula.

These symptoms are merely suggestive and no one or combination of them, aside from the actual findings of a congenital umbilical fistula, can lead to any high percentage of correct diagnoses. The important lesson to be learned from the literature regarding these complications is that they are very serious and the end result in the past has shown a mortality of 75 per cent in the pathological diverticula cases. It behooves us, therefore, not only to be on our guard to the early diagnosis, but alive to the possibilities at operation. All diverticula, no matter how innocent they may be, should be removed providing the patient's condition warrants it. In proportion to their comparative frequency, they are a greater menace than is the appendix.

I wish to present a most interesting case, one which was of paramount importance to me and which shows the possibilities in the acute surgical abdomen of today.

The patient, a school boy, thirteen years of age, a nephew of one of our prominent gynecologists, came under my observation on November 23, 1928. His family history was negative. His previous history was negative except for some indefinite and vague pain in his abdomen for the past several years. However, he had two attacks of what was believed to be appendicitis, recovering from each. Suddenly on the afternoon of November 22, 1928, he was seized with a sharp pain in his lower abdomen. This was accompanied by nausea

and vomiting. On the morning of November 23, 1928, he was seen by his uncle, Dr. Mundell, who believed he had an acute appendicitis. Dr. C. C. Marbury was called in consultation. Dr. Marbury concurred and he was sent to Providence Hospital on the afternoon of November 23, 1928. I saw him at 3 P. M. He was well nourished, his temperature was 101, pulse 120, and respiration was 30. His abdomen was flat, symmetrical, and there was marked tenderness in right lower quadrant and also marked rigidity of the right rectus muscle with some slight rigidity of left rectus. No masses were detected. His W. B. C. was 12,000.

A diagnosis of acute appendicitis was made and immediate operation was performed under nitrous-oxide and ether anesthesia. A right rectus incision was made. Upon opening the peritoneal cavity, a very large amount of thin, clear, straw-colored fluid was seen to escape. This was an evident transudate. The appendix was retrocecal, adherent and markedly inflamed. It showed definite evidence of pathology. To account for this fluid, we were led to make a further exploration of the abdominal cavity. The first possibility was that of tubercular peritonitis. No tubercles were detected. In exploration of the pelvic cavity a mass was found and upon delivering this mass into the wound, a definite obstruction was encountered. This obstruction was caused by a large or giant Meckel's diverticulum. The diverticulum itself was about the size of a large orange of a club-shape, and tapering to a broad pedicle which fused with the ileum about fifteen inches from the ileocecal valve. The diverticulum had three tit-like projections or protuberances. From the center or middle projection was attached a thick cord-like band which was about eighteen inches in length and was attached to the small intestine higher up. There was no lumen in this band but there evidently had been one in fetal life. This band made a hammock or sling through which the intestine became tangled. The ileum itself was incarcerated and almost gangrenous. There were many mesenteric glands enlarged. The operation consisted of the appendectomy, a resection of Meckel's diverticulum, and a release of the intestinal obstruction. The diverticulum required resection from both of its intestinal attachments.

The patient left the table in good condition



and made an uneventful recovery. He left the hospital on December 5, 1928, and now has perfectly recovered, with no sequel.

My purpose of considering this unusual condition was many-fold: First, to report a most unusual and interesting case of a giant Meckel's diverticulum; second, to again familiarize ourselves with the possibilities of the surgical abdomen; third, to appreciate the various manifestations of Meckel's diverticulum with the different complications with which it may be associated, and, fourth, to emphasize the necessity of always making an adequate incision which will enable us to make a satisfactory examination of the abdominal viscera. By such routine examination we may inadvertently discover situations which otherwise might not be brought to light. We might then be prepared to deal with them at the time of discovery rather than to wait developments which might necessitate a second operation.

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### FASCIA TO FASCIA APPPOSITION IN HERNIORRHAPHIES.

By PHILIP JACOBSON, M. D., Petersburg, Va.

Noteworthy contributions have been made in recent years concerning the use of living and dead fascial strips in replacing catgut as suture material, especially in herniorrhaphies. That there is a necessity for a change is often disclosed by the fact that failures and recurrences are frequently due to lack of union between the conjoined tendon or the internal oblique and transversalis muscles and the shelf of the inguinal ligament.

Investigators of this problem have attacked it from several angles, chief of which are insufficient or absolute non-union of muscle to fascia and inability of our present suture material to hold the tissues in apposition until sufficient fibrosis and union occur. Such investigation suggests that if fascia to fascia apposition could be satisfactorily accomplished using catgut as a suture material, the difficulties associated with using fascial strips might be considerably lessened and good closures more easily obtained.

E. W. Andrews,<sup>1</sup> first suggested fascia to fascia apposition in herniorrhaphies by advising the suture of the lateral edge of the cut aponeurosis to the inguinal ligament. He also included some of the muscle, but he made no effort to alter the inguinal structures so as to

effect a firm union between the aponeurosis of the external oblique and the muscular structures immediately beneath it in an attempt to render these structures more serviceable. The writer has attempted to do this in the manner to be described, but the few cases done, while entirely satisfactory, are not enough to prove the procedure superior to those in vogue at present.

Failure of union of the muscular structures and the inguinal ligament may be considered in several ways: first, muscle-fascia or muscle tendon-fascia union will not occur; second, the suture material is inadequate; and, third, the mechanical factors involved tend to discourage such a union.

Experimental evidence that traumatized muscle will unite with fascia is conclusive and a dissection of a recurrent inguinal or a post-operative hernia cannot but establish the fact clinically. The manner and usefulness of such a union has, however, been in dispute. Seelig and Chouke,<sup>2</sup> after repeating their experiments subsequent to the work of A. R. Koontz,<sup>3</sup> have come to the conclusion that "only under exceptional circumstances will non-traumatized muscle unite with fascia." Koontz and Rosenblatt and Meyers<sup>4</sup> do not distinguish between traumatized and non-traumatized muscle, but it seems that they have experimentally produced firm union between muscle and fascia. Presuming that the union does occur between epimysium and fascia, the result obtained for practical surgical purposes is precisely what is required, and the dispute tends to become of academic interest. Therefore, reasonable traumatization of the muscle may even be desirable. Differences in firmness of the union depend upon the relative amount of fibrous tissue in the muscle, the suture material, the amount of tension present, and the absence of interposed areolar tissue. But even if the union is firm, the action of a muscle cannot be utilized by inserting its edge or even its width into another structure. Muscle must have a sheath disposed so as to gather up the forces of the millions of its constituent fibers and

1. E. W. Andrews, S. G. O., 2:89, 1906.

2. Seelig, M. G., and Chouke, K. S.: Fundamental Factor in Recurrence of Inguinal Hernia. *An. Surg.*, 7:553, Nov., 1923.

Seelig, M. G., and Chouke, H. S.: Fundamental Principles Underlying the Operative Cure of Inguinal Hernia. *J. A. M. A.*, 88:8, Feb. 19, 1927.

3. Koontz, A. R.: Muscle and Fascia Suture with Relation to Hernia Repair. *S. G. & O.*, 42, Feb., 1926.

4. Rosenblatt, M. S., and Meyers, M.: Muscle-Fascia Suture with Preserved Fascia and Tendon. *S. G. & O.*, 47:6, Dec., 1928.

transmit them through a firm insertion to the structure desired.

Catgut as suture material has certainly been successfully used in laparotomies. Undoubtedly the several layers inserted provide a basis for union that could not be obtained were the same amount of catgut used in one layer as in three, or through and through suture taken through the whole abdominal wall. But the strain is great, especially on the rectus sheath and the amount of catgut used cannot account for the firm closures. Fascia to fascia union must be the basis for the uniformly good results obtained.

Several mechanical factors tend to discourage the union of the muscular structures to the inguinal ligament. The space between these two structures is often quite large and after they are brought together the rectus muscle has a convexity toward the ligament. In addition to the tension created by joining these structures, the convexity of the rectus muscle is reduced every time this muscle contracts and materially increases the tension. Sutures will cut through these tissues under this continual strain. The conjoined tendon is sometimes quite meagre and muscle tissue is present instead. This muscle can easily be drawn over, but it lacks a sheath and, therefore, has nothing to assist it in resisting the intra-abdominal pressure even though its union to the inguinal ligament be quite secure.

Undoubtedly, sutures made of fascial strips, whether alive or dead, have considerable value especially in cases of recurrence or when large defects in the abdominal wall remain after the hernia has been reduced and the sac removed. However, if the structures already present can be rendered more serviceable so that primary recurrences are prevented, then certainly a surgical advantage will have been gained.

It is possible that the medial portion of the aponeurosis may be made to perform a more active part in protecting the inguinal region against recurrence of a hernia. Imbrication will increase its thickness, but as long as it is above the conjoined tendon, its defense is secondary and not primary. If, however, it is made part of the conjoined tendon and the internal oblique and transversalis muscle by uniting these structures firmly with it and then using the surface of the aponeurosis as the edge of the structure to be sutured to the

inguinal ligament, fascia to fascia apposition is obtained and the aponeurosis assumes a primary role in the defense of the hernia. It also provides a sheath having sufficient transverse fibers upon which the underlying muscle may depend for support.

This may be done quite simply. An incision is made in the usual manner, the aponeurosis of the external oblique divided, the sac ligated as high as possible and removed. The under surface of the medial portion of the aponeurosis is then exposed and all the areolar tissue lying upon it is carefully removed as well as that upon the ventral surface and lateral edge of the conjoined tendon. Of course, the shelf of the inguinal ligament and the ventral surface of the aponeurosis are similarly cleaned. I question whether surgical gentleness should be used at this point. This areolar tissue, while very fine, is difficult to remove and I have found that rubbing with dry gauze is the most effective way of getting rid of it. The aponeurosis is then sutured flat upon the muscles by several through and through sutures of chromic catgut. Enough aponeurosis should be left at the edge of the muscles to fold over and under the rounded edge of the muscles where it will be fixed by the sutures attaching it to the inguinal ligament.

The sutures joining the aponeurosis and the underlying muscle are inserted about one-quarter inch lateral to the edge of the sheath of the rectus, pass through the whole muscle thickness and emerge on the aponeurosis about one-half inch lateral to where it started. Four or five sutures usually suffice and they should make the muscular structures and the aponeurosis firmly adherent down to the pubis.

The next step is to suture the muscular structures with its covering of aponeurosis to the shelf of the inguinal ligament. Each suture should pass through the structures as follows: first, through aponeurosis, then through the whole thickness of muscle tissue, and, finally, through aponeurosis again, bringing the lateral edge of the aponeurosis under the muscle. This fixes the edge of the muscle under the aponeurosis and together with the first set of sutures should result in the firm union of these structures. The suture is then carried through the inguinal ligament as in the usual procedure and tied on top of the aponeurosis. By this means a considerable area of the ventral sur-



face of the aponeurosis is brought in apposition with the inguinal ligament. The cord may be disposed either under or over this layer depending upon the nature of the hernia, the lateral fold of the aponeurosis is sutured over the medial fold and the skin closed in the usual manner.

Uniting the aponeurosis of the external oblique with the muscular structures beneath it alters the mechanical forces of the inguinal region after a herniorrhaphy has been performed. The tension between the rectus sheath and the inguinal ligament, which, without the union of these two structures, is carried by the stretched and thinned fibers of the internal oblique and transversalis, is now evenly distributed between the aponeurosis and the structures beneath it, or probably the aponeurosis carries the greater burden. When the aponeurosis is sutured separately to the inguinal ligament, this does not obtain because the muscles having already been sutured in place, the aponeurosis is relaxed when it is attached and carries only a small part of the burden. Thus, while the amount of tension is not changed, the medium through which it is carried is altered and the strain on the muscular structures is much reduced.

The ability of the wall thus formed to resist the intra-abdominal pressure is greater than when these structures are not united. The first structures to meet this pressure are the muscular ones and only after these have been thrust forward does the aponeurosis assume part of the load. Even then its effect is somewhat diminished by the fact that some slipping of the opposed surfaces must occur, modifying the ability of the aponeurosis to be of service. If the structures are firmly united, however, the aponeurosis must assume a primary part in the defense of the hernia as great or greater than the part played by the muscular structures themselves. It will be noted in hernias and in recurrences that the aponeurosis is seldom relaxed, the hernia passing through it rather than carrying it along and that successful closure at the external ring forms a formidable barrier against recurrence.

The possibility of a firmer union between the ventral surface of the aponeurosis and the shelf of the inguinal ligament is certainly greater than the union between the muscle alone and the ligament. In addition, even if the muscles were securely anchored, their elas-

ticity might permit a protrusion sufficiently large to be the starting point of a recurrence.

The amount of fibrosis obtained is probably not as great as when strips of fascia are used. But the loss is compensated by an extra thickness of living fascia at a most vulnerable point and the more adequate defense of the hernia set up by the structures already present. While it is true that the edge of the muscular structures is sutured to fascia, the tension at that junction is so much less and the surface available for fibrosis so much greater that the resulting union cannot help but be of greater service.

When performing the usual herniorrhaphy, my attention has been directed occasionally to the amount of tension existing at the suture line along the inguinal ligament after the muscular structures have been joined to it. This tension is undoubtedly greatly relieved within a few hours after the operation, according to the time required for the tissues to lose some of their elasticity, but, nevertheless, it is a factor which should be considered as tending to discourage the union between the two structures and it is the cause of cutting through of sutures. Of course, there is a similar amount of tension when the above herniorrhaphy is performed, but as the sutures are all placed in fascia there is less tendency to cut through the tissues.

Perhaps it were better if this tension could be minimized before the patient left the table and a point of elasticity provided in the inguinal area. This may be done by undermining the skin over the rectus sheath and making a short longitudinal incision in the sheath near its medial border. A gap about one-quarter inch wide will thus be created, but, as it is well protected by its underlying muscle and as some fascial regeneration will occur during the convalescence, there will be little or no weakening of the abdominal wall at this point.

An objection to this operation may be in the comparatively large amount of catgut used in so small an area. Only in one case was a small amount of serum found, but the blame for this cannot be placed entirely upon the catgut.

The advantages of performing this herniorrhaphy are:

1. Fascia to fascia apposition is obtained.
2. The medial portion of the aponeurosis

of the external oblique takes a primary part in the defense of the hernia.

3. The tension between the rectus muscle and inguinal ligament is distributed more evenly and through firmer structures.

4. An increased amount of fibrous tissue is formed by the extra layer of aponeurosis inserted between the conjoined tendon and inguinal ligament.

5. The muscular structures acquire a sheath, lose their elasticity, and are held in place by the numerous points of attachment to the overlying aponeurosis.

6. The placing of all sutures in heavy fibrous tissue insures a firmer hold and prevents them from cutting through.

115 *Monroe Street*.

### ETHYLENE—THE NEW ANESTHETIC.

By BEATRICE WILSON, Richmond, Va.  
Anesthetist of Stuart Circle Hospital.

The history of anesthesia dates back to Helen of Troy and the Talmud, the Jewish Holy Book. From the beginning of history men have been in search of agents that would bring about a state of unconsciousness for a definite period. Ethylene is the latest of the long line of anesthetics.

It was first introduced by a Frenchman named Poggiale, and used by the English surgeon, Thomas Nunnally, as an inhalation anesthetic in 1849. After several years of experimental work it was forgotten, and nitrous oxide and ether held the day.

Then, in 1918, carnation growers had severe losses in shipping their flowers into Chicago because of the fact that, when placed in greenhouses, the flowers would "go to sleep" while the buds—already showing petals—would not open. Crocker and Knight, of the Hull Botanical Laboratory, began to make a study of the effect of illuminating gas on carnations. They found that ethylene forms about 4 per cent of the gas and was the constituent that was causing the toxicity to flowers. As a result of all this, the question of the toxic effect of ethylene on animals arose, and Dr. A. B. Luckhardt, of Chicago, assisted by J. B. Carter, began experiments on animals—using frogs, white mice and rats, guinea pigs, rabbits, kittens and dogs—which lasted until 1922. Then, on March 11, 1923, at the Presbyterian Hospital, in Chicago, before surgeons and physicians, Dr. Luckhardt and Carter administered the gas to each other. In April, 1923,

they reported the first one hundred and six cases operated on under ethylene at the above mentioned hospital, Isabella Herb being the chief anesthetist.

In the meanwhile, not knowing of Luckhardt and Carter's work, W. E. Brown, of Toronto, Canada, discovered ethylene and was making experiments on animals. A preliminary account of these experiments was read before the Academy of Medicine in February, 1923, and published in the Canadian Medical Association Journal in March. One week later Luckhardt and Carter published their experiments.

Ethylene or olefiant gas is a colorless gas with a slightly sweetish taste. The chemical formula is  $C_2H_4$ . It is somewhat lighter than air. Pure ethylene is solid at below  $-169.4$  degrees Centigrade and boils at  $-150$  degrees Fahrenheit. Anesthetists and doctors seem to disagree as to the description of the odor, and the induction stage is so short that the patients do not remember it. One prominent surgeon describes it as an ethereal odor, others as a sweetish odor. Some doctors compare it to sorghum molasses. As for myself, I can give it but one name and that is garlic.

Ethylene is made by extracting a molecule of water from alcohol. It is a hydrocarbon gas, very inflammable, and explosive when mixed with a high per cent of oxygen and air. It is compressed in steel cylinders and is available for use in the same manner as nitrous oxide.

Ethylene is soluble in the blood and tissues, and passes through the body unchanged. It is a stable gas although not as much so as ether. It is thought to be held in a loose physical combination with the blood plasma.

The advantages of ethylene are as follows:

1. Short, easy induction, free from struggling and suffocation.

2. No cyanosis. More oxygen may be given with ethylene and a healthy color may be had all through the anesthesia.

3. No sweating. The skin is warm and dry throughout the operation, unless the patient is allowed to rebreathe too much. No loss of body heat and fluid.

4. Fewer gas pains afterward. Peristalsis is not interfered with if ethylene is used alone.

5. No interference with mucous membranes of the respiratory tract. It may be adminis-



tered safely in empyema, cardiac and renal cases.

6. No change in blood pressure after the first ten or fifteen minutes. The pulse is slow and even.

7. Muscular relaxation.

8. Quick recovery—two to three minutes, not over six minutes.

9. Less nausea and vomiting. Some cases have none; others empty their gastric contents on the table and do not remember it afterwards; a few cases vomit for a day or more. We must take into consideration the fact that post-operative vomiting may be caused by other factors than that of the anesthetic drug and its administration, such as dread of operation, morphine, trauma during operation, lack of pre-operative preparation. The vomiting is usually projectile in character and there is not the terrible retching and nausea that is seen with the use of ether. In comparing the nausea and vomiting following ethylene, one must be sure to compare cases of the same type. Handling the intestines often causes nausea and vomiting and the anesthetist and the anesthetic drug receive the blame.

The disadvantages of ethylene:

1. *Odor.* Most people at first object to the odor of ethylene. It makes some sick, but after a short period one gets accustomed to it and does not notice it at all. This disadvantage, as far as the patient is concerned, may be overcome by using equal parts of ethylene and oxygen, or by starting the anesthetic with nitrous oxide, as this gas is very pleasant to take, having no odor and renders the patient unconscious very quickly.

2. *Oozing of Blood.* Under ethylene there is a marked increase in the bleeding, especially noticed on making the incision. This is only during the administration and may easily be put up with when considering the great advantages of ethylene. Dr. Robert Friedman, of New York City, suggests the use of adrenalin, 3 to 5 drops in 2 c.c. of saline, injected in the area of operation to minimize oozing.

3. *Inflammability and Explosibility.* This is the most important drawback of ethylene and the one that has so greatly handicapped its use. As is generally known, there have been several explosions from ethylene. The news of such disasters travelled like gossip over the country and greatly prevented ethylene from

holding the place it should hold among the anesthetic drugs. All explosions were studied carefully and carelessness was at the bottom of them all. It was found that the mixture of oxygen with nitrous oxide and ethylene forms a very high explosive, but no more so than ether. The danger of explosions may be eliminated if one is careful and uses only a machine made especially for ethylene. The Foregger Metric Machine, with carriage and the large "G" cylinders, is used in Stuart Circle Hospital and is found to be ideal. Great care must be exercised to prevent using matches, lighted cigarettes, cauteries, electric warming apparatus, etc., when administering ethylene. Some experts advise grounding the machine and anesthetist against static sparks. This all depends on the machine used. The best way to avoid explosions is not to get careless and take chances. Carbon dioxide should be run through the machine after using so as to wash out all gases.

#### COMPARISON OF ETHYLENE AND NITROUS OXIDE

In the administration of nitrous oxide and oxygen and ethylene and oxygen, the inductions and recovery stages are rapid. Death in both is caused by asphyxia, respiration ceasing a few minutes before the heart.

Nitrous oxide dissolves readily in the blood plasma, while the changes in the blood during ethylene anesthesia are as yet still unknown. It is thought by some that nitrous oxide changes the blood chemistry somewhat while ethylene does not.

With ethylene-oxygen anesthesia the blood pressure decreases in deep anesthesia and remains constant when it is light. The pulse is slow and even; respiration is quiet and resembles natural sleep. In nitrous oxide and oxygen anesthesia, the pulse and respiration are quickened and fuller. The blood pressure increases.

With nitrous oxide the color is often cyanotic, as the use of oxygen must be minimized. The cyanosis with nitrous oxide is blue or black if there is too much oxygen hunger, while that of ethylene is an ashen grey. With nitrous oxide the skin is moist. The eye signs of both gases are about the same.

The color with ethylene is pink all through the anesthetic. The skin is warm and dry, except in anemic and muscular types. Much

more oxygen may be given with ethylene without disturbing the anesthetic.

It is thought that there is more nausea and vomiting with ethylene than nitrous oxide. This may be due to the gas in the tank, as one gets more nausea with one tank than with another, due to the impurity of the gas.

Ethylene gives much better relaxation than nitrous oxide but by combining ether in small amounts with either gas, complete relaxation may be obtained. Ether still holds first place when it comes to relaxation of the muscles.

We find more headaches and faintness following nitrous oxide than following ethylene. The vomiting is not quite as severe after the administration of nitrous oxide as it is after ethylene.

Ethylene is a great deal more inflammable and explosive than nitrous oxide. Canteries and electric equipment may be used with nitrous oxide; they must not be used with ethylene.

When using either nitrous oxide or ethylene for a long period, ice may form on the outside of the tank. This usually means ice on the inside due to the high water content. With nitrous oxide this may be handled by the use of an electric warmer, while with ethylene hot water bags around the top of the tank is the best one can do. Both gases are purer now and the above condition is not often found.

At Stuart Circle Hospital, ethylene has been used since November, 1928. During this time we have given approximately seven hundred ethylene anesthetics. "The Forreger Metric Machine" consists of a carriage with four large "G" cylinders, one of carbon dioxide, one of oxygen, one of ethylene and one of nitrous oxide. The head of the machine consists of a glass jar, containing four glass tubes with a scale back of them for the four gases, emerged in water. Ethylene and nitrous oxide are measured in litres, while oxygen and carbon dioxide are in c.c. Gas pressure is registered on the scale by different colored floaters in the four glass tubes. The ether jar, holding four ounces, hangs beside the scale. One of the nicest things about the machine is the valve that turns pure oxygen under pressure directly into the breathing bag.

We start our patients on nitrous oxide and oxygen until unconscious, then turn to ethylene, giving a mixture of 80 per cent ethylene and 20 per cent oxygen. In the maintenance or sur-

gical stage, we carry our patients on between  $4\frac{1}{2}$  and 5 litres of ethylene and 700 to 800 c.c. of oxygen, using small amounts of ether for better relaxation. About 5 per cent carbon dioxide is used to stimulate respiration when necessary.

To give a good gas anesthetic, it is very necessary that there be no food or liquids in the stomach and that the patient be quiet and composed when coming to the operating room. Here morphine plays a big part. The patient should have a hypodermic of morphine, gr.  $\frac{1}{4}$ , and atropine, gr.  $\frac{1}{150}$ , at least three-quarters of an hour before operation; better still one hour before.

In all but four of our cases the patients have gone to sleep very quietly and peacefully. Two of these four were men thought to be alcoholic, one was a very nervous woman, and the fourth was a child four years of age.

For the last month we have made a study of the pulse, before, during and after operation. We found in nearly all cases that the rate is very slow during and after operation under ethylene. The blood pressures taken before and after have shown no change, although we have not made a complete study of this.

Oozing of blood has been very marked in all cases.

As yet, we have not been able to use ethylene alone successfully in all types of operations, as some anesthetists have reported. For abdominal work, such as hysterectomies, resections, cholecystectomies, ether vapor, from 1 to  $2\frac{1}{2}$  ounces, has been given, but ethylene works beautifully in operations on the extremities, breast amputations, thyroids and simple appendectomies.

Some patients suffered from nausea and vomiting, others did not, but in nearly all cases discomfort lasted only a short time. On visiting the patients the next day, one is pleased to note how well they look and feel.

I feel that ethylene is here to stay, and I hope, by continual observation and study of this gas, to develop eventually a technique that will permit its employment in all cases that come to me for anesthesia.

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To labor with zest, and to give of your best,  
For the sweetness and joy of the giving,  
To help folks along, with a hand and a song,  
Why, there's the real sunshine of living.

—Robert W. Service.



## President's Page

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### **Interest Centers in Charlottesville Meeting, Medical Society of Virginia.**

October 22nd to 24th, the time of the next State Medical Society meeting is close at hand. Charlottesville, our meeting place is centrally located, approached by the finest highways from every direction and is easily accessible to every member. The profession of Charlottesville, our host on this occasion, is preparing for a full attendance. Tuesday, exercises incident to the opening of the new medical school building of the University of Virginia will begin early in the morning. Every member is invited to attend these exercises.

The regular program is now in the hands of the printer. Your program committee has exercised its best judgment in its arrangement. Please examine it carefully. It will be noted that a night session is planned for Thursday, the 24th, in order to give every one who is offering a paper a chance to present it. As the session advances, if we find that we are running behind schedule, or if those present desire to eliminate this last night's session, the meeting on Thursday could be split into two sections and enable us to close at the end of the afternoon session as heretofore. Please be thinking about this. This possibility would be in accordance with the By-Laws.

To expedite the handling of the scientific program, it has been decided to commence Wednesday's scientific program at 9 A. M. instead of 10 A. M. as has been the custom for many years. This will necessitate a short over-lapping of the scientific and business sessions, but we hope for a large attendance at both meetings.

The meeting of the Council is arranged for 3 o'clock and the first meeting of the House of Delegates for 3:30, Tuesday, the 22nd. Members of these two bodies are urged to be on hand promptly. Chairmen of all committees

are expected to make reports at the first meeting of the House of Delegates and are urged to have their reports concise and in written form to expedite handling of the business before us. Clinics are arranged for this same afternoon. The conflict here is unavoidable since it is not thought wise to have clinics running during the conduct of the scientific program, and according to the Constitution and By-Laws, the Council and House of Delegates must meet on the first day named for the annual session.

The opening session Tuesday night will be a joint one between our Society and the authorities of the Medical Department of the University.

It will be noted that, as usual, the first number on the Wednesday morning program is Voluntary Case Reports. During the last few sessions, very few case reports have been given. This, in our judgment, should be one of the most interesting features of this session. We urgently hope that every fellow will bear this in mind and at least a goodly number will come prepared to present something of value. In addition, we urge every one to discuss freely any paper in which he is particularly interested as free discussion is essential to the success of every medical meeting.

Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association, is to give a short talk before the House of Delegates and also before one of the general sessions. All of our members feel a peculiar interest in Dr. Morgan as he has for some years been a member of our organization and is well known to many of our members.

We are looking forward to a full attendance, full of pep and enthusiasm.

J. BOLLING JONES, M. D.,  
*President, Medical Society of Virginia.*

## Proceedings of Societies

### The Southwestern Virginia Medical Society

Held its regular semi-annual meeting at Galax, September the 16th and 17th, with Dr. A. M. Showalter, Christiansburg, president, in the chair. According to custom, a banquet was held on the opening evening and this was followed by an interesting program that evening and the following day. Several doctors were admitted to membership. Radford was selected as the place of meeting for the next meeting which is to be held in March, 1930. The following officers were elected: President, Dr. J. Coleman Motley, Abingdon; vice-president, Dr. J. K. Caldwell, Galax; and secretary-treasurer, Dr. E. G. Gill (re-elected), Roanoke.

### The Southampton County Medical Society

Held its regular meeting on September the 17th, at which time the following officers were elected for the ensuing year: President, Dr. E. M. Babb, Ivor; vice-president, Dr. A. P. Cutchin, Franklin; and secretary, Dr. W. T. McLemore (re-elected), Courtland. Delegate and alternate were also elected to represent that Society at the Charlottesville meeting of the Medical Society of Virginia.

### Loudoun County Medical Society.

The Loudoun County Medical Society recently reorganized and elected Dr. G. Frank Simpson, of Purcellville, as president, and Dr. W. O. Bailey, of Leesburg, as secretary.

### The Wise County Medical Society.

Dr. J. D. Willis, Roanoke, Va., was the principal speaker at the August meeting of this Society. He gave a valuable talk on infantile paralysis and brought out a number of new methods in treating this disease which has been so prevalent in Roanoke and vicinity for the past few weeks. A general discussion followed Dr. Willis' talk. Drs. George W. Botts, T. S. Ussery and W. R. Culbertson, of Norton, were appointed a committee to prepare for the entertainment of the Clinch Valley Medical Association in September, for which occasion the Wise County Medical Society was to act as host.

Dr. W. B. Peters, Appalachia, and Dr. W. R. Culbertson, Norton, are president and secretary, respectively, of the Wise County Society.

### Fairfax County Medical Society.

This Society held its annual meeting in

August, at which time the following officers were elected for the ensuing year: President, Dr. E. C. Shull, Herndon; vice-presidents, Dr. Lyle Mason, Washington, D. C., and Dr. C. A. Ransom, East Falls Church; secretary, Dr. W. P. Caton, Accotink; treasurer, Dr. F. M. Brooks, Fairfax Station. Delegate and alternate were also elected to the Charlottesville meeting.

### Fauquier and Loudoun County Societies Hold Joint Meeting.

The annual meeting of Fauquier and Loudoun County Medical Societies was held at the home of Dr. W. O. Bailey, at Aldie, Va., September 26th, at 8:00 P. M. There was an attendance of about 150 people from this section, including all doctors and their wives, dentists, druggists, ministers, registered nurses and their escorts, and a large number of laymen and their wives.

The address of welcome was made by Dr. Bailey and responded to by Drs. G. F. Simpson and W. C. Payne. Dr. W. A. Bloedorn read a paper on "Irregularities of the Heart." Dr. Ennion G. Williams, State Health Commissioner, spoke on the subject of Public Health.

A very interesting and instructive moving picture, on the preparation of biological products, was shown by a representative from Parke, Davis & Company.

## Woman's Auxiliary, to the Medical Society of Va.

### Program of Annual Meeting.

#### STATE OFFICERS

*President*-----Mrs. F. W. UPSHUR, Richmond  
*Vice-President-Elect*----Mrs. EDWIN J. NIXON, Petersburg  
*First Vice-President*---Mrs. J. W. PRESTON, Roanoke  
*Second Vice-President*,

Mrs. STUART MICHAUX, Richmond

*Third Vice-President*---Mrs. T. W. EDMUNDS, Danville

*Fourth Vice-President*----Mrs. M. N. KING, Norfolk

*Treasurer*-----Mrs. WM. B. PORTER, Richmond

*Secretary*-----Mrs. JOSEPH BEAR, Richmond

#### DIRECTORS

Mrs. SOUTHGATE LEIGH, Norfolk

Mrs. J. ALLISON HODGES, Richmond

Mrs. H. T. MILLER, Washington, D. C.



## PROGRAM

TUESDAY, OCTOBER 22, 1929

1:00 P. M.

University Luncheon, Memorial Gymnasium. Members of the Woman's Auxiliary are expected to attend.

3:00 P. M.

Executive Board Meeting at Monticello Hotel

WEDNESDAY, OCTOBER 23, 1929

10:00 A. M.

General Meeting at Monticello Hotel

Invocation—Rev. W. R. Mason.

Reading of Minutes of last meeting.

Report of Board meeting.

Report of President.

Report of Secretary.

Report of Treasurer.

Address by Dr. E. A. Alderman, President, University of Virginia.

Report of Delegates to the A. M. A. Auxiliary.

Address—Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association.

Address—Mrs. Walter J. Freeman, Philadelphia, Pa., President, Woman's Auxiliary to Medical Society of the State of Pennsylvania.

Report of Standing Committees:

Health Education.

Organization.

Legislative.

State Editor.

Hygeia.

Report of County Presidents and Directors.

Address—Dr. J. Bolling Jones, Petersburg, Va., President of the Medical Society of Virginia.

Address—Dr. Charles R. Grandy, Norfolk, Va., President-Elect of the Medical Society of Virginia.

This general meeting is open to all mothers, wives, sisters, and daughters of doctors, and they are all urged to attend whether or not they are members of the Woman's Auxiliary.

The Executive Board Meeting that is to follow the general meeting on Wednesday will be arranged for later, and the time and place announced at the general meeting.

## ENTERTAINMENT FOR LADIES

*Tuesday, October 22, 1:00 P. M., University Luncheon, Memorial Gymnasium.*

*Wednesday, October 23, 4:30 P. M., Barbecue, Farmington Country Club.*

*Thursday, October 24, 2:30 P. M., Motor Trip including visit to Monticello.*

County members please read carefully and, if possible, attend this meeting. We wish to make this year's meeting at Charlottesville a banner one.

Mrs. Stuart Michaux and Mrs. Southgate Leigh have been appointed delegates from Virginia to the Woman's Auxiliary of the Southern Medical Association in Miami, Fla.

## The Truth About Medicine

In addition to the articles enumerated in our letter of July 29, the following have been accepted:

Abbott Laboratories

Abbott's Viosterol Cod Liver Oil

Ciba Co., Inc.

Atoquinol—Ciba

Vioform—Ciba

Eli Lilly &amp; Co.

Inhalant Ephedrine (Plain)—Lilly

Hypodermic Tablets Ephedrine Hydrochloride—Lilly 0.016 Gm. (¼ grain)

Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.0325 Gm. (½ grain)

Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.016 Gm. (¼ grain)

Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.0325 Gm. (½ grain)

Lilly's Ephedrine Jelly

Ointment Ephedrine Compound

Syrup No. 110, Ephedrine Sulphate

Syrup No. 111, Ephedrine Sulphate

Mead Johnson &amp; Co.

Mead's Powdered Lactic Acid Milk, Non-Curdling No. 1, with Dextrose.

## NEW AND NON-OFFICIAL REMEDIES

Inhalant Ephedrine (Plain)—Lilly.—A solution containing ephedrine—Lilly (New and Non-official Remedies, 1929, p. 166) 1 Gm.; cottonseed oil, 1 Gm.; perfumed and tinted, liquid petrolatum to make 100 c.c. Eli Lilly & Co., Indianapolis.

Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.016 Gm. (¼ grain)—Each tablet contains ephedrine hydrochloride—Lilly (New and Non-official Remedies, 1929, p. 168), 0.016 Gm. Eli Lilly & Co., Indianapolis.

Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.0325 Gm. (½ grain)—Each tablet contains ephedrine hydrochloride—Lilly (New and Non-official Remedies, 1929, p. 168), 0.0325 Gm. Eli Lilly & Co., Indianapolis.

Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.016 Gm. (¼ grain)—Each tablet contains ephedrine sulphate—Lilly (New and Non-official Remedies, 1929, p. 169), 0.016 Gm. Eli Lilly & Co., Indianapolis.

Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.0325 Gm. (½ grain)—Each tablet contains ephedrine sulphate—Lilly (New and Non-official Remedies, 1929, p. 169), 0.0325 Gm. Eli Lilly & Co., Indianapolis.

Syrup No. 110—Ephedrine Sulphate—It contains ephedrine sulphate—Lilly (New and Non-official Remedies, 1929, p. 169), 0.22 Gm., in 100 c.c. (1 grain per fluidounce) and alcohol 12 per cent; flavored and tinted. Eli Lilly & Co., Indianapolis.

Syrup No. 111, Ephedrine Sulphate—It contains ephedrine sulphate—Lilly (New and Non-official Remedies, 1929, p. 169), 0.44 Gm., in 100 c.c. (2 grains per fluidounce), alcohol 12 per cent; flavored and tinted. Eli Lilly & Co., Indianapolis.

Neocinchophen—B. P. C.—A brand of neocinchophen—N. N. R. For a discussion of the actions, uses and dosage, see New and Non-official Remedies, 1929, p. 114. Benzol Products Co., Newark, N. J. (Jour. A. M. A., August 17, 1929, p. 524).

Vioosterol.—Investigators discovered that ergosterol when subjected to ultraviolet radiation, develops an antirachitic (vitamin D) potency enormously greater than that of cod liver oil. For therapeutic use the ergosterol after irradiation is usually dissolved in a vegetable oil. The Council on Pharmacy and Chemistry has adopted the term *vioosterol* to designate irradiated ergosterol, and *viosterol* in oil to designate a preparation containing this substance, dissolved in oil. The Council has also provisionally adopted the qualifying phrases 100 D, 5 D, etc., to designate the vitamin D potency of the various preparations as multiples of the vitamin D potency of good cod liver oil. *Viosterol* is for use in prophylaxis and treatment of rickets and, experimentally, in other conditions arising from faulty calcium and phosphorus assimilation. It should be borne in mind that *viosterol* does not contain vitamin A and that harm from hypercalcemia may result from the use of too large doses.

*Viosterol in Oil 100 D.*—*Viosterol* dissolved in a vegetable oil and standardized to contain 1,333 rat units of vitamin D in each Gm., this strength being 100 times that of a potent cod liver oil used as a standard. The daily prophylactic dose for the average infant and child is 8 to 10 drops (0.1233 to 0.1666 c.c.; 2½ to 3½ minims.) The marketed preparations are accompanied by a dropper designed to deliver 3 drops to the min'm.

*Viosterol—Abbott.*—A brand of *viosterol* in oil 100 D, N. N. R. Abbott Laboratories, North Chicago, Ill.

Parke, Davis & Co's *Viosterol*.—A brand of *viosterol* in oil 100 D, N. N. R. Parke, Davis & Co., Detroit.

*Viosterol—Squibb.*—A brand of *viosterol* in oil 100 D, N. N. R.—E. R. Squibb & Sons, New York.

*Cod Liver Oil with Viosterol 5 D.*—*Viosterol* dissolved in cod liver oil, the solution containing not less than 400 vitamin A units per Gm. when tested by the pharmacopeial method and 66.65 rat units of vitamin D per Gm., this antirachitic strength being five times that of a potent cod liver oil used as a standard. This product is proposed for use in conditions in which it is desired to supplement the administration of vitamin A with that of vitamin D. For infants and young children the dose is 2.5 to 3.3 c.c. (53 to 67 minims) daily.

Abbott's *Viosterol Cod Liver Oil*.—A brand of cod liver oil with *viosterol* 5 D, N. N. R. Abbott Laboratories, North Chicago, Ill.

Squibb's *Viosterol Cod Liver Oil 5 D.*—A brand of cod liver oil with *viosterol* 5 D, N. N. R. E. R. Squibb & Sons, New York.

Squibb's *Viosterol Cod Liver Oil 5 D. Mint Flavored*.—A brand of cod liver oil with *viosterol* 5 D, N. N. R., containing 0.67 per cent of oil of spearmint as flavoring. E. R. Squibb & Sons, New York (Jour. A. M. A., August 31, 1929, p. 693).

#### PROPAGANDA FOR REFORM

Relief of Earache by Phenol-Glycerin Mixture.—Drops for earache that immediately and continuously give relief are not available, nor are they desirable, as they would mask the symptoms and permit middle

ear suppuration to go on to mastoiditis with all its dangers and sequelae. Instillation, as hot as can be borne, of glycerin with 5 per cent of phenol is usually adequate to relieve pain of acute nonsuppurative middle ear inflammation. If this does not suffice, prolonged irrigation of the ear canal with water as hot as can be borne, usually gives a great deal of relief. (Jour. A. M. A., April 27, 1929, p. 1471.)

Antiscarlet Fever Preparations.—Scarlet fever streptococcus antitoxin is a horse serum preparation. It should be used only in those persons who are susceptible and already infected so that they are in danger of developing scarlet fever at once. The protection conferred by the prophylactic dose of antitoxin is transient. Scarlet fever streptococcus toxin does not contain horse serum. It should be used in five graduated doses for active immunization of susceptible persons who do not already have scarlet fever. (Jour. A. M. A., March 9, 1929, p. 830).

Sodium Bicarbonate and Calcium Carbonate for Alkalinization of Urine.—Both sodium bicarbonate and calcium carbonate are effective antacids as far as the gastric secretion is concerned. However, sodium bicarbonate is much more efficient in aiding in the alkalinization of the urine than calcium carbonate. The reason for the difference lies in the fact that sodium salts, such as bicarbonate, are freely absorbed by the intestine. On the other hand, calcium carbonate itself is not susceptible of absorption. Sodium bicarbonate may be freely used to the extent of actual alkalinization of the urine, though it may take as much as 30 Gm. or more. (Jour. A. M. A., March 9, 1929, p. 831).

Mouth Washes and Dentifrices.—Nowhere is scientific thought and even honesty more disregarded than in the pseudobiochemical propaganda inseparably connected with the exploitation of dentifrices and mouth washes. Consider for instance what advertising writers are pleased to term "acid mouth." It is well known, but not often admitted in the propaganda of certain dentifrice manufacturers that the pH level of the saliva is maintained regardless of the material introduced into it. Dentifrices of both acid and alkaline nature are sold with the claims that they will correct all sorts of supposed conditions in the mouth. Many of the alkaline dentifrices, presumably designed to correct mouth acidity (which in a sense is the normal condition), are especially blatant in their announcements. If an abnormal acid or alkaline condition is present in the mouth, there is probably an underlying constitutional cause which should have the expert attention of physician and dentist. Sooner or later, manufacturers of dentifrices will have to heed the results of scientific investigation. The chief purpose of a dentifrice is to clean the teeth, or more practically, to establish a healthy habit. The balance of evidence is against the view that dentifrices can be used for so-called mouth correction. (Jour. A. M. A., March 16, 1929, p. 899).

The Questionnaire Nuisance.—One of the many by-products of the modern art of advertising is the advertising agency, whose business it is to prepare advertising campaigns for those who wish to cry their wares in the market places. Out of the business of preparing advertising campaigns has grown one of the most intolerable nuisances that ever plagued the medical profession—the questionnaire. The fault rests primarily on those members of the profession who, with easy-going tolerance, give for the asking, expert opinions that are based on much work and special study. Some of these questionnaires come frankly from advertising agencies; others, although also emanating from advertising



agencies, are camouflaged with names such as "research" or "bureau".

**Medical Prescriptions of Alcohol.**—During 1928, 68,951 physicians used prescription books as contrasted with 48,097 in 1927. The number of licensed physicians in those states which permit the use of liquor for medicinal purposes is 116,756, so that a little more than one-half the total number of physicians permitted to prescribe alcoholic liquors avail themselves of the opportunity. Slightly more than 10 per cent of all the physicians who might prescribe alcoholic liquors used the total number of prescriptions afforded them by the government. The total number of prescriptions issued during the year increased from more than eight million in 1922 to approximately thirteen and a half million in 1925 and then decreased to less than twelve million in 1927. At the close of the year the number of outstanding permits of this kind had increased to 101,052. (Jour. A. M. A., March 30, 1929, p. 1130.)

**Ergotole, Extract of Ergot Purified, Ergotin—Merck, Liquor Ergot—Mulford, and Secacornin Omitted from N. N. R.**—All of the ergot preparations included in New and Nonofficial Remedies, 1928, are watery extracts and as such, according to the current view, cannot contain much of the active alkaloids which are the important constituents of ergot when viewed from a clinical standpoint. With one exception, none is assayed by the U. S. P. method or any other method that will show the content of active alkaloids. The methods by which they are assayed show only, or mainly, the content of putrefactive amines, which have not proved desirable in obstetric work. The referee of the Council on Pharmacy and Chemistry for ergot preparations reported assays of the accepted brands not claiming assay by the official method (except Liquor Ergot—Mulford) which showed the preparations to contain less than 10 per cent of their claimed strength. In other words, they were found practically devoid of specific alkaloids. The Council voted to omit Ergotole, Extract of Ergot Purified, Ergotin—Merck, Liquor Ergot—Mulford, and Secacornin from New and Nonofficial Remedies. (Jour. A. M. A., May 4, 1929, p. 1521.)

**Ovoferrin Omitted from N. N. R.**—Ovoferrin is a solution containing 5 per cent of an artificial protein product in which iron is present in the so-called organic, or masked, form. This product was accepted for New and Nonofficial Remedies in 1905. From the time of its acceptance, members of the Council have questioned its value, mainly on the ground that it presents no demonstrated superiority to the standard U. S. P. iron preparations. Ovoferrin is a survival of the now obsolete theory that iron in non-ionized form should be more efficient therapeutically than the ordinary iron preparations. The Council on Pharmacy and Chemistry voted to omit Ovoferrin from New and Nonofficial Remedies because it is an unscientific and superfluous mixture. (Jour. A. M. A., May 4, 1929, p. 1521.)

**The Rental of Radium.**—The Council on Physical Therapy publishes a report on the rental of radium which was approved by the Council on Pharmacy and Chemistry. The Council points out that during the last few years some of the firms supplying radium, as well as a few individual radiologists, have undertaken to prepare and to furnish radium to physicians on a rental basis. Rental has not been limited to radiologists, who might be expected to know how to make proper use of the radium, but the intent of this service is to enable any physi-

cian to treat his own patients. The Council feels that the rental of radium to physicians cannot be entirely condemned; but, since the physician renting the radium must assume full legal and moral responsibility for the diagnosis and treatment of his patients, the Council does condemn the system of "mail-order" and telephone diagnosis and the type of treatment with which such rental has come to be associated. (Jour. A. M. A., May 18, 1929, p. 1678.)

## Book Announcements

**Surgical and Medical Gynecologic Technic.** By THOMAS H. CHERRY, M. D., F. A. C. S., Professor of Gynecology, New York Post-Graduate Medical School and Hospital; Director of Gynecology Pan-American Hospital, New York City, etc. Philadelphia. F. A. Davis Company. 1929. Octavo of 678-xxii pages, with 558 halftone and line engravings, from photographs and pen and ink drawings by the author. Cloth. Price, \$8.00 net.

**Varicose Veins. With Special Reference to the Injection Treatment.** By H. O. MCPHEETERS, M. D., F. A. C. S. Director of the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital; Attending Physician New Asbury and Fairview Hospitals; Associate Staff of Northwestern Hospital, Minneapolis, Minn. Philadelphia. F. A. Davis Company. 1929. Octavo of 208 pages. Illustrated with halftone and line engravings. Cloth. Price \$3.50 net.

**Sterilization for Human Betterment.** A Publication of The Human Betterment Foundation. By E. S. GOSNEY, B. S., LL. B., and PAUL POPENOE, D. SC. New York. The Macmillan Company. 1929. 12mo. of 202-xviii pages. Cloth. Price \$2.00.

**The Treatment of Diabetes Mellitus With Higher Carbohydrate Diets.** A Textbook for Physicians and Patients. By WILLIAM DAVID SANMUM, M. S., M. D., F. A. C. P.; PERCIVAL ALLEN GRAY, Ph. D., M. D., and RUTH BOWDEN, B. S. Harpers Medical Monographs. Harper and Brothers. New York and London. 1929. 12mo. of 309 pages. Leatherette. Price \$2.50.

**International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Surgery, Etc.** By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, A. M., M. D., and Collaborators. Volume III., Thirty-ninth Series, 1929. Philadelphia and London. J. B. Lippincott Company. 1929. Octavo of 308-viii pages. Cloth.

**Papago Music.** By FRANCES DENSMORE. Smithsonian Institution. Bureau of American Ethnology. Bulletin 90. United States Government Printing Office. Washington. 1929. Octavo of 229 pages. Illustrated. Cloth.

**Myths and Tales of the Southeastern Indians.** By JOHN R. SWANTON. Smithsonian Institution. Bureau of American Ethnology. Bulletin 88. United States Government Printing Office. Washington. 1929. Octavo of 275 pages. Cloth.

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## Editorial

### The Medical School of the University of Virginia.

"The Muses still have their own native place;  
'T has secret charms which nothing can deface."

As members of the medical profession of this State enter the classic shades of our historic university to attend the convention of the sixtieth session of the State Society, memories of boyhood days at medical schools come to mind. Grounded at the medical school in the rudiments of medical knowledge, medical men can never lose the impressions of their college days. Throughout life, remembrance of the classroom, the dissecting hall, the laboratory, and the wards of the hospital, lingers fresh in mind. The long hours spent over the text book, schooling the memory in the apparently limitless number of scientific terms; the daily attendance upon lectures and demonstrations, attempting to absorb from the professor's discourse additional items of knowledge; working with microscope and equipment through the days over the minutiae of bacteriology, histology, physiology, and kindred elementary subjects; memorizing in part the nature, dosage and action of numberless chemicals, herbs and drugs used in sickness and in health; learning something of the technique, methods, and the infinite details of the surgical clinic and the operations; studying and analyzing the course, conditions and behavior of disease in the wards of the hospital; the student of medicine in his years of preparation receives indelible impressions that follow him through the long years of after-life. Although his four years at medical school are in reality a small section out of his life line as a practitioner of

medicine, and although much that he attempts to master during those college days necessarily becomes a dim memory, yet the air of the school, the personality of his professors, the associations of his classmates, the lasting impressions of anatomy hall and lecture room, a thousand crowding memories of these "big" years ever loom large in the memory and play important part in the course of his after years.

So the matured practitioner of medicine, as a member of the state medical association, comes back to these classic halls. He feels that here, in this great university, where medicine has been taught so well for over a hundred years, memories of his student days in medicine, "have their own native place; with secret charms which nothing can deface."

### Use of Barbituric Acid Derivatives.

The widespread use of veronal, sodium veronal, anytol, allonal, ipral, phanadon, luminal and sodium luminal—barbituric acid derivatives—make consideration of the pharmacologic and toxic action of this series of preparations of interest. Weis\* has brought out very clearly the salient points of this subject in a recent paper which deals chiefly with the therapeutic indications of the intravenous administration of sodium-phenyl-ethyl-barbiturate (sodium-luminal) and other barbituric acid derivatives. It is not our intention to draw attention to the intravenous administration particularly, but to direct our readers' thoughts more to the nature of this group of hypnotics. The familiarity of the practitioner with the action, both salutary and noxious, of drugs in daily use, is most important. The perusal of the article by Weis will do much to throw light upon the nature and action of these remedies. The demand for sedative, analgesic and hypnotic remedies in modern practice is such that every practitioner must be alert in the study of every new remedy of this sort.

The appearance of diethylbarbituric acid, commercially known as veronal or barbital in practice, has been followed by a large number of other barbituric acid derivatives. These have been applied in practice to such cases as formerly were given chloral and bromides and other hypnotics. Various trade names of these closely related barbital preparations have brought about some confusion in the minds of practitioners, but it is to be remembered in

\*A. J. M. Sc., Sept., 1929, pages 390-405.



general terms that their pharmacologic and therapeutic actions are largely similar.

The hypnotic dose in animals exhibited such pharmacologic effects as ataxia, a sort of purposeless struggle, rage and muscular tremor; superficial sleep may supervene and may be followed by excitement upon awakening. In the case of deep sleep in animals, there is slowed respiration, sometimes rapid, and there may be periods of Cheyne-Stokes' respiration. The heart rate in animals is increased. The blood pressure falls. Peristaltic movements at the gastro-intestinal tract stop and the temperature of the animal falls. Toxic action of this group of remedies in man is characterized by a dull sensation in the head and by ataxia, by difficult swallowing, by a disturbed sense of smell, and by disorder of speech. The onset of sleep in this state shows reduced respiration and a sort of Cheyne-Stokes' variety of respiration. The heart rate is increased. The blood pressure is lowered. The temperature falls. Kidney function is disturbed.

The author discusses the use of these remedies as an aid to surgical anesthesia; in certain psychoses, in eclampsia cases, in epilepsy, in toxic reactions due to certain local anesthetics, in tetanus, in convulsions from cerebral hemorrhage, in persistent hiccup, and other conditions. The *pros* and *cons* of the effects of this group of remedies are brought out. Epilepsy, for instance, has been controlled favorably by the judicious use of luminal, properly timed in administration. In tetanus, five patients received sodium-luminal intravenously in a 10 per cent solution and three died. In the instance of convulsion accompanying cerebral hemorrhage and traumatic injury to the skull, seven patients were relieved of the convulsion promptly. Sodium-luminal was administered intravenously.

But withal, it must be said, that these remedies are toxic and harmful, and, while producing salutary effect upon such symptoms as pain, difficult and distressing breathing, convulsive seizures and like conditions, they are toxic in action and must be used with due care.

In summarizing, Weis notes that man is more susceptible to the barbituric acid derivatives than animals, and that "in man a relatively smaller percentage of the fatal dose produces analgesia and narcosis." Marked individuality exists in patients as to the responses and toxic action. He notes also that the routine use of intravenous hypnotic doses of the bar-

bituric acid derivatives for surgical anesthesia and "for the inducement of sleep of days' duration in certain psychoses, is dangerous." The author concludes that "a hypnotic dose of any barbituric derivative entails potential danger to the patient."

### Syphilis in the Liver.

One's interest in the pathologic action of syphilis in the liver never lags; a study of a group of one hundred cases, conducted over a period of from six months to six years engages the attention of the reading physician at once; from a contribution presenting clinical and diagnostic data, at the hands of O'Leary,\* Greene and Rowntree, of the Mayo Clinic and Mayo Foundation, the practitioner at the bedside and in the progress of daily cases receives a fund of interesting information, both from its review of already known conditions and from the authors' experience, opinions and conclusions in this important clinical survey.

Syphilis of the liver is not thought to be a common complication of syphilis. According to observations heretofore made, this conclusion may be held but it is questionable whether or not gross clinical changes in the liver or terminal symptoms of advanced liver pathology, superinduced by luetic morbidity of its structure, interstitial, vascular, or parenchymal, should be relied upon as a criterion of judgment as to its frequency. Based upon the older methods, it may be rare, but, based upon more careful study of the functional activity of the organ by laboratory tests, the frequency of syphilitic hepatic complication is probably greater than heretofore estimated. The necropsy findings and laboratory tests seem to point this way.

Modifying Stokes' suggested classification, our authors note that acute syphilis may be characterized by an acute hepatitis of a benign type, and, also, by a course of severe change denoted as acute yellow atrophy. While late syphilis may have specific liver changes without displaying recognized symptoms, a diffuse hepatitis may occur. There may be a gummatous hepatitis; a sort of syphilitic cirrhosis, either affecting biliary structures and producing jaundice or vascular structures and producing ascites.

Besides these luetic changes in the liver of the syphilitic, there are to be remembered certain serious and important damage-phenomena

\*Read O'Leary in *Archives of Internal Medicine*—August, 1929.

that the modern specific treatment (arsenicals) of syphilis imposes on the liver. These may be called post-arsenical liver changes. This group of liver complications is to be watched for in the use of arsenic therapy as well as in malarial inoculations in the late syphilitic.

Without considering their comment on hepatitis of acute syphilis, diffuse hepatitis of late syphilis, gummatous hepatitis, chronic hepatitis with jaundice (of biliary cirrhosis) and chronic hepatitis with ascites (portal cirrhosis), one receives in this paper an interesting study at the hands of O'Leary and co-workers. Laboratory observations of liver function were made. Fructose tolerance proved of little value in diagnosis. Nitrogen partition of the blood likewise proved of little diagnostic value. Bile pigment tests were useful in cases of post-arsphenamine jaundice. Dye retention was observed in all cases of hepatitis with jaundice of whatever type. In case of gumma dye, retention was variable; the majority showed a slight degree of abnormal retention. In cirrhosis, retention of dye was more uniform; practically all showed some definite retention and it was of diagnostic significance. The bile acids of the blood by means of the Pettenkofer's test was not of diagnostic importance: only in a few cases was there an increase of bile acids in the blood.

The authors of this contribution were impressed by the varied types of hepatic disease of syphilitic import and suggested the importance of thinking of the type of hepatic syphilitic lesion. The differential diagnosis, however, is to be sought through the aid of history, general examination, laboratory tests, therapeutic trial and discriminating and prolonged observation.

### **The Action of Merbaphen (Novasurol) on the Kidney of the Dog.**

Keith and Johnstone\* report the functional and pathologic effect of novasurol on the kidney of the dog. As this remedy has been used recently more or less extensively by practitioners, the conclusions and impressions of these observers in these experiments may be of interest. They used five dogs. The drug was given into the vein and also intramuscularly. The drug was diluted with physiologic solution of sodium chloride in such proportion that 0.1 c.c. of merbaphen was contained in 0.5 c.c. of the solution.

They found that, if the fluid is limited and the chloride intake is constant, diuresis with increase in the relative and total urine chlorides always occurs following injection of the drug, but that there is no constant change in the blood chlorides.

Again, they noted that repeated doses of merbaphen, corresponding in amount to doses used therapeutically in man, given over a period of five months, produced no functional change in the kidney of the dog; that is to say, no change in the blood urea, non-protein nitrogen, specific gravity, or phthalein excretion. They, however, found that kidneys of animals, given repeated doses, showed evidence of slight degeneration when examined histologically from three to nine days following final dose. The damages were greater following the larger doses but appeared to disappear if the drug was discontinued. They also found that in toxic doses, the drug was similar in action on the kidneys of the rabbit and also similar to the action of other mercury compounds in common use.

These observations upon the dog may be remembered when applying the drug in man. The man is usually dropsical, edematous and not infrequently approaching the terminal stages of a chronic pathologic process in the liver, heart or kidneys; separately or in combination.

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## **News Notes**

### **All Roads Lead to Charlottesville,**

And they are good roads too, should you prefer to use your auto as a means of transportation to the meeting of the Medical Society of Virginia in Charlottesville, October 22nd, 23rd, and 24th.

The letter by our President, Dr. J. Bolling Jones, of Petersburg, in this issue, gives an idea of the program. The celebration on Tuesday, the 22nd, incident to the dedication of the new Medical Building at the University, will add great interest to this meeting. All members and ladies accompanying them are invited to these exercises and also to the luncheon immediately following. Attractive scientific and commercial exhibits have been arranged and interesting clinics planned. Those who have not engaged space for scientific exhibits should write Dr. John S. Horsley, Jr., 617

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\*Arch. Int. Med., Sept., 1929, page 438.



West Grace Street, Richmond, at once, as booths are to be built very shortly.

Cabell Hall at the University has been selected as the place for the scientific and business meetings and exhibits. Special arrangements will be made to handle automobile traffic and Cabell Hall is quite convenient to the University Cafeteria where lunch and supper may be obtained at reasonable prices.

A special feature of this meeting will be the presentation of the Canti Film on Wednesday evening, about 8:15, which will be shown by courtesy of the Virginia Section of the American Society for the Control of Cancer.

All members are requested to fill out and mail cards which are enclosed with the programs *at once*, as it will assist the local committee and hotels in making visitors comfortable. Do not stay away from the meeting if you are unable to make reservation at a hotel, for there are plenty of rooms to be had in boarding houses and private homes. Just write immediately to Dr. W. D. MACON, CHARLOTTESVILLE, VA., IN REGARD TO THE ACCOMMODATIONS DESIRED.

Be sure to bring the ladies with you.

We append a list of delegates and alternates from the various component societies, whose names had been received at office of headquarters before going to press. Other component societies are urged to arrange for representation in the House of Delegates and send names of delegates and alternates promptly to the Executive Secretary at 104½ West Grace Street, Richmond.

#### DELEGATES AND ALTERNATES

ACCOMACK—Dr. James C. Doughty, Onancock, *Delegate*; Dr. Rooker J. White, Keller, *Alternate*.

ALBEMARLE—Drs. R. L. Page, Batesville, and Percy Harris, Scottsville, *Delegates*; Drs. Allen Voshell, University, and W. E. Brown, Sanatorium, *Alternates*.

ALEXANDRIA—Dr. R. Lee Wilkins, Alexandria, *Delegate*; Dr. H. A. Latane, Alexandria, *Alternate*.

AMELIA—Dr. James L. Hamner, Mannboro, *Delegate*; Dr. H. C. Rucker, Mattoax, *Alternate*.

BEDFORD—Dr. W. O. McCabe, Thaxton, *Delegate*; Dr. B. A. Rice, Forest, *Alternate*.

BOTETOURT—Dr. A. W. Hammond, Amsterdam, *Delegate*; Dr. E. W. Dodd, Buchanan, *Alternate*.

DICKENSON-BUCHANAN—Dr. J. C. Sutherland, Clintwood, *Delegate*.

FAIRFAX—Dr. J. T. Jones, Herndon, *Delegate*; Dr. William Meyer, Herndon, *Alternate*.

FAUQUIER—Dr. Richard Mason, The Plains, *Delegate*; Dr. George H. Davis, Warrenton, *Alternate*.

LEE—Dr. P. D. Pence, St. Charles, *Delegate*; Dr. Geo. W. Young, Pennington Gap, *Alternate*.

LOUDOUN—Dr. John A. Gibson, Leesburg, *Delegate*; Dr. Frank Simpson, Purcellville, *Alternate*.

MECKLENBURG—Dr. W. W. Wilkinson, La Crosse, *Delegate*; Dr. B. S. Yancey, Chase City, *Alternate*.

MID-TIDEWATER MEDICAL SOCIETY—*Essex County*, Dr. E. L. W. Ferry, Millers Tavern, *Delegate*; Dr. J. N. DeShazo, Center Cross, *Alternate*.

*Gloucester County*—Dr. J. D. Clements, Ordinary, *Delegate*; Dr. James W. Smith, Hayes Store, *Alternate*.

*King and Queen County*—Dr. R. D. Bates, Newtown, *Delegate*; Dr. W. S. Cox, Shackelfords, *Alternate*.

*King William County*—Dr. A. W. Lewis, Ayletts, *Delegate*; Dr. M. H. Harris, West Point, *Alternate*.

*Mathews County*—Dr. R. R. Hoskins, Mathews, *Delegate*; Dr. C. M. Rains, Bohannon, *Alternate*.

*Middlesex County*—Dr. W. P. Jones, Urbanna, *Delegate*; Dr. V. P. Stiff, Harmony Village, *Alternate*.

*New Kent County*—Dr. M. H. Eames, Lanexa, *Delegate*; Dr. Thomas P. Darracott, Tunstall, *Alternate*.

*York County*—Dr. L. O. Powell, Seaford, *Delegate*; Dr. E. W. Buckingham, Messick, *Alternate*.

NANSEMOND—Dr. O. R. Yates, Suffolk, *Delegate*; Dr. C. H. Dawson, Suffolk, *Alternate*.

NORFOLK—Drs. P. St. L. Moncure, Franklin D. Wilson, N. G. Wilson, C. Lydon Harrell, and E. C. S. Taliaferro, all of Norfolk, *Delegates*; Drs. A. B. Hodges, Julian L. Rawls, Walter B. Martin, and Chas. J. Andrews, all of Norfolk, *Alternates*.

NORTHAMPTON—Dr. Harry Denoon, Nassawadox, *Delegate*; Dr. S. K. Ames, Cape Charles, *Alternate*.

PATRICK-HENRY—*Henry County*—Dr. J. M. Shackelford, Martinsville, *Delegate*; Dr. H. G. Hammond, Martinsville, *Alternate*.

*Patrick County*—Dr. W. C. Akers, Stuart,

*Delegate*; Dr. J. T. Shelburne, Critz, *Alternate*.

PITTSYLVANIA COUNTY AND DANVILLE—Dr. I. C. Harrison, Danville, *Delegate*; Dr. J. J. Neal, Danville, *Alternate*.

POST-GRADUATE MEDICAL SOCIETY—*Brunswick County*—Dr. W. C. Harmon, Dolphin, *Delegate*; Dr. F. N. Mallory, Lawrenceville, *Alternate*.

*Dinwiddie County*—Dr. Wright Clarkson, Petersburg, *Delegate*; Dr. G. H. Reese, Petersburg, *Alternate*.

*Greensville County*—Dr. B. J. Atkinson, North Emporia, *Delegate*; Dr. G. M. Naff, North Emporia, *Alternate*.

*Nottoway County*—Dr. W. W. Bennett, Blackstone, *Delegate*; Dr. C. C. Tucker, Blackstone, *Alternate*.

*Prince George County*—Dr. D. L. Elder, Hopewell, *Delegate*; Dr. J. M. Bailey, Hopewell, *Alternate*.

*Surry County*—Dr. W. W. Seward, Surry, *Delegate*; Dr. F. E. Steere, Claremont, *Alternate*.

*Sussex County*—Dr. Joel Crawford, Yale, *Delegate*; Dr. T. M. Raines, Wakefield, *Alternate*.

PRINCE EDWARD—Dr. Susan W. Field, Farmville, *Delegate*; Dr. T. G. Hardy, Farmville, *Alternate*.

PRINCESS ANNE—Dr. N. A. Nicholson, Creeds, *Delegate*; Dr. Cora Z. Corpening, Virginia Beach, *Alternate*.

RAPPAHANNOCK VALLEY MEDICAL SOCIETY—Dr. T. Welch Dew, Fredericksburg, *Delegate*; Dr. John E. Cole, Fredericksburg, *Alternate*.

RICHMOND ACADEMY OF MEDICINE—Drs. Fred M. Hodges, C. C. Coleman, Stuart Michaux, James H. Smith, W. B. Blanton, Mark W. Peyser, Manfred Call, and J. Allison Hodges, all of Richmond, *Delegates*; Drs. C. R. Robins, Carrington Williams, Thos. D. Jones, J. B. Stone, W. L. Peple, W. S. Beazley, R. W. Miller, and W. B. Porter, all of Richmond, *Alternates*.

ROCKINGHAM—Dr. N. M. Canter, Harrisonburg, *Delegate*; Dr. Howard Armstrong, Harrisonburg, *Alternate*.

RUSSELL—Dr. S. C. Couch, Cleveland, *Delegate*.

SCOTT—Dr. J. M. Dougherty, Jr., Gate City, *Delegate*.

SOUTHAMPTON—Dr. R. H. Cobb, Franklin, *Delegate*; Dr. A. P. Cutchin, Franklin, *Alternate*.

SOUTHWESTERN VIRGINIA MEDICAL SOCIETY—*Bland County*—Dr. J. A. Wagner, Bland, *Delegate*.

*Carroll County*—Dr. C. B. Nuckolls, Hillsville, *Delegate*; Dr. W. R. Gardner, Hillsville, *Alternate*.

*Giles County*—Dr. K. D. Graves, Pearisburg, *Delegate*; Dr. M. C. Newton, Narrows, *Alternate*.

*Grayson County*—Dr. W. P. Davis, Galax, *Delegate*; Dr. J. K. Caldwell, Galax, *Alternate*.

*Montgomery County*—Dr. A. M. Showalter, Christiansburg, *Delegate*; Dr. M. B. Linkous, Blacksburg, *Alternate*.

*Pulaski County*—Dr. R. H. Woolling, Pulaski, *Delegate*; Dr. R. F. Thornhill, Pulaski, *Alternate*.

*Smyth County*—Dr. Z. V. Sherrill, Marion, *Delegate*; Dr. R. E. Hughes, North Holston, *Alternate*.

*Washington County*—Dr. F. H. Smith, Abingdon, *Delegate*.

*Wythe County*—Dr. J. M. Miller, Wytheville, *Delegate*; Dr. E. M. Chitwood, Wytheville, *Alternate*.

TAZEWELL—Dr. Isaac Peirce, Tazewell, *Delegate*.

WISE—Dr. G. B. Setzler, Norton, *Delegate*.

#### Virginia Pediatric Society.

The annual meeting of the Virginia Pediatric Society will be held at a luncheon in the Monticello Hotel, Charlottesville, Wednesday, October 23rd, at 1:30 P. M. Dr. L. T. Royster, University. The President, will preside. Anyone interested in the Diseases and Welfare of Children and who wishes to become a member of the Society, will be welcomed at this meeting.

Dr. J. Buren Sidbury, Wilmington, N. C., will be the speaker on this occasion. His talk will be on "Transfusion in Infancy and Childhood." There will also be a Round Table discussion of interesting topics.

The Secretary, Dr. W. B. McIlwaine, or the Local Chairman, Dr. W. W. Waddell, will be glad to hear from any physician who will be interested in attending the luncheon.

#### The Virginia Hospital Association

Is to hold its annual meeting in Charlottesville, on Tuesday, October 22nd, at 3:00 P. M., the afternoon of the opening day of the Medical Society of Virginia. Dr. J. M. Shackelford, Martinsville, is president; Dr. P. St. L. Moncure, Norfolk and Miss Bertha Pickels,



Staunton, vice-presidents; and Dr. John O. Boyd, Roanoke, secretary-treasurer. Drs. Southgate Leigh, Norfolk, John Bell Williams, Richmond, and Miss Virginia Thacker, Roanoke, form the executive committee.

Below we give program which has been prepared for this meeting, to which are invited all members of the State Society.

#### PROGRAM

Tuesday Afternoon, October 22, 1929

3:00 P. M.

#### PAPERS:

Strict Surgical Cleanliness an Essential in Successful Hospital Work—Dr. Southgate Leigh, Norfolk.

The Frequent Changes in the Personnel of a Hospital.—Miss Virginia Thacker, Supt. Lewis-Gale Hospital, Roanoke.

Economy in Hospital Management—Miss Bertha E. Pickles, Supt. Kings Daughters Hospital, Staunton.

Liability Insurance. Should the Hospitals of Virginia Carry it? If So, What Kind?—Mr. Geo. A. Riddick, Richmond.

ROUND TABLE OF HOSPITAL PROBLEMS, conducted by Dr. J. L. McElroy, Pres. Hospital Division Medical College of Va.

Nursing Problems in Small Hospitals.

The Collections of Delinquent Accounts, Including Those From Accident Cases.

The Purchase of Supplies.

The Hospital and Its Relation to Health Department.

The Promotion of Public Health.

The Problem of the Dietetic Department.

Laboratory, X-Ray and Drug Charges: Should Hospitals Expect a Profit From These Charges?

#### ELECTION OF OFFICERS.

### The Southern Medical Association

Is arranging for a most attractive meeting in Miami, Fla., November 19th-22nd, following which there will be a trip to Cuba, under the direction of Mr. C. P. Loran, secretary-manager of the Association, for those who may have time for a more extended vacation. Dr. Thomas W. Moore, Huntington, W. Va., is this year's president. This is a lovely time of the year in Miami and special entertainments, as only Miami can furnish, are being arranged. Sports will take the form of golf, trap shooting and fishing.

If unacquainted with names of Miami hotels, Dr. Bascom H. Palmer, Jr., Huntington Bldg., Miami, chairman of the Committee on Hotels, and his committee will see that comfortable accommodations are arranged in accordance with instructions given.

Start the winter right, by attending this meeting in Miami.

### The Clinch Valley Medical Society

Held one of the best meetings in its history on September 28th at Norton, Va., under the

presidency of Dr. Isaac Peirce, of Tazewell. There were forty members in attendance. Papers were presented by Dr. Peirce, president, Dr. H. G. Grant, of the State Department of Health, Dr. Churchill Roberston, Salem, and Drs. Greer Baughman, James H. Smith, and H. U. Stephenson, of Richmond. An American Legion Dance was given that evening in honor of the Society.

The following officers were elected for the ensuing year: President, Dr. J. B. Wolfe, Coeburn; vice-presidents, Drs. J. M. Dougherty, Nicholsville, and S. C. Couch, Cleveland; secretary-treasurer, Dr. C. B. Bowyer (re-elected), Stonega. The next meeting of this Society will be held at Richlands, Va., in April.

### The Southside Virginia Medical Association

Convened in Suffolk on Tuesday, September 10th, with a good attendance present. Among the most interesting features of the program was a talk on the recent epidemic of Anterior Poliomyelitis in Roanoke by Dr. Roy Hoover of that city. The visiting doctors were given a delightful dinner at the Hotel Elliott by the local profession. The next meeting will be held in Petersburg in December.

Dr. R. H. Manson, McKenney, is president, and Dr. R. L. Raiford, Franklin, secretary of this Association.

#### Married.

Dr. William Thomas Harris and Miss Sarah Tomlinson, both of Troy, N. C., July 17th. Dr. Harris is an alumnus of the Medical College of Virginia, of the class of '25.

Dr. Oscar Bernard Biern and Miss Charlotte Egri, both of Huntington, W. Va., August 24th. Dr. Biern is an alumnus of the Medical Department of the University of Virginia.

Dr. Oliver Lee Jones, Hopewell, Va., and Miss Anne Hope Story, Franklin, Va., September 30th.

### The American College of Surgeons

Will hold its annual Clinical Congress in Chicago, Ill., October 14th to 18th. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, is director-general and this year's president. Surgeon General M. W. Ireland, of Washington, D. C., is president-elect.

### Eliminating Diphtheria in Children's Institutions.

At Mooseheart School, Mooseheart, Ill., says the *Illinois Health Messenger*, there has been only one case of diphtheria since 1920,

though the average number of children in the school during that time exceeded 1,000. The resident physician ascribes this record to the fact that every child entering the school since September, 1919, has been immunized with diphtheria toxin-antitoxin. The same practice is carried out at the Soldiers' Orphans' Home at Normal, Ill., which has an average of 700 children, and no case of the disease has developed in more than three years.

#### **The American Roentgen Ray Society**

Had its annual meeting in New York City, September 17th-20th, inclusive, under the presidency of Dr. H. M. Imboden, of New York City. The following were elected officers for the ensuing year: President-elect, Dr. Alexander B. Moore, Rochester, Minn., (an alumnus of the University of Virginia, Department of Medicine); vice-presidents, Dr. Howard E. Ruggles, San Francisco, and Dr. Bernard H. Nichols, Cleveland, O.; secretary, Dr. John T. Murphy, Toledo, O.; treasurer, Dr. William A. Evans, Detroit, Mich.; librarian, H. H. Dachtler, Toledo, O., new member Executive Council, Dr. Fred M. Hodges, Richmond, Va.; delegate to the International Radiological Congress in Paris in 1931, Dr. Preston M. Hickey, Ann Arbor, Mich.; alternate, Dr. Leopold Jaches, New York City. Place and date of next meeting are to be named by the Executive Council.

#### **Dr. William C. Holt,**

Of the class of '26, University of Virginia, Department of Medicine, and recently of Dallas, Tex., has located in Mexia, Tex., and will limit his practice to urology.

#### **Dr. John S. Horsley, Jr.,**

Richmond, Va., gave an address on September the 19th, by invitation, before the Central Tri-State Medical Society which met in Huntington, W. Va.

#### **Dr. R. H. Newman,**

Who has been located at Montvale, Va., for some time, has located in Vinton, Va., where he will continue the practice of his profession.

#### **Blindness From Occupational Pursuits.**

A campaign was recently undertaken by the American Federation of Labor and the National Society for the Prevention of Blindness, in an effort to conserve the sight of working men and women. Mr. Lewis H. Carris, New York, managing director of the National Society for the Prevention of Blindness, in one of his addresses, stated: "Of the 100,000 blind persons in the United States, it is estimated

that about 15,000 lost their sight in occupational pursuits. In addition to the totally blind, there is a much large number of men, women and children whose vision has been so impaired by the eye hazards of industrial occupations that they are handicapped throughout life." He said further that the industries of the country are now paying approximately \$10,000,000 a year compensation to workmen who have been totally or partially blinded at work, but that leaders of organized labor can do much to reduce this occupational blindness by emphasizing at every opportunity the fact that nearly all such blindness is easily preventable, and that no financial award can compensate for the loss of vision.

#### **Chicago's Police Employment Agency for Boys.**

Chicago has reduced its toll of arrests of boys under twenty-one years of age from 11,438 to 8,759, a reduction of 24 per cent within a year. This reduction in arrests has been ascribed largely to the Big Brother role assumed by the police of that city in finding work for unemployed boys. The neighborhood police stations have been used as employment bureaus, and many business leaders have cooperated actively in the program, which was definitely undertaken to reduce the delinquency situation. More than 22,000 boys applied during the first twelve months of the operation of this scheme, and jobs were found for nearly 20,000.

#### **Drs. McCarthy and Fields.**

Dr. Russell J. Fields announces his association with Dr. Lee McCarthy, Washington, D. C., in the practice of dermatology and syphilology. They have their offices at 1705 N Street, Northwest, that city.

#### **Offer of Prize for Best Study on Causes of Fall in Birthrate.**

In response to a recent prize offered by the Eugenics Research Association, essays submitted on the birth-death ratio in various countries have shown that the net fecundity has been falling for the last forty years in different European countries.

This Association now (September, 1929,) offers a new prize of \$3,500.00 for the best essay upon the causes of this decline with especial reference to Europeans and persons of European stock.

The treatment should be historical, should include an analysis of studies already made upon the subject, and should lay stress upon



the phenomenon in peoples of Nordic, or chiefly of Nordic origin in all parts of the world. Preference will be given to essays which are based upon objective studies rather than expressions of opinion.

The contest is open to the world, and the essays may be written in the English, German or French languages.

Essays must not be signed, but each must be identified by a motto, and accompanied by a sealed envelope containing the name and address of the author.

The Association reserves the right of publication of essays submitted.

The essays in competition for this prize are to be mailed to the Eugenics Research Association, Cold Spring Harbor, N. Y., U. S. A. They should be posted so as to reach their destination not later than June 1, 1930.

#### **Dr. Stuart McGuire Honored.**

In recognition of his long service as president of the Medical College of Virginia, Richmond, from which Dr. Stuart McGuire retired on July 1, 1925, the board of visitors of the college has established the McGuire Lectureship which will be filled annually by an invited speaker. The subjects of the lectures will usually cover topics related to medicine, dentistry, pharmacy, or nursing, the fields covered by the several schools of the institution.

#### **January 1929 Monthly Wanted.**

We have received so many requests for the January, 1929, issue of the MONTHLY that our file of this number is exhausted. We will appreciate being advised if any of our readers have copies of that issue which they no longer wish. Address VIRGINIA MEDICAL MONTHLY, 104½ West Grace St., Richmond, Va.

#### **Noted Among Bank Directors in Southside Virginia.**

In recognition of their financial and social standing, doctors are often made directors and officers of banks. Names of some doctors recently noted as directors in Southside Virginia banks are:

- Dr. C. C. Tucker, Blackstone.
- Dr. R. D. Tucker, Powhatan.
- Dr. H. Cowles Rucker, Mattoax.
- Dr. J. A. B. Lowry, Crewe.
- Dr. James L. Hamner, Mannboro.
- Dr. J. Weldon Smith, Farmville.

#### **The Cost of Medical Care.**

"The delivery of adequate, scientific medi-

cal service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life," is announced as the aim of the Committee on the Cost of Medical Care by Dr. Olin West, Secretary of the American Medical Association. This committee includes among its membership private medical practitioners, National and State public-health officers, a public-health nurse, institution and organization executives, economists, and the general public. Twenty-three of its forty-two members hold medical degrees, and its chairman is Ray Lyman Wilbur, M. D., Secretary of the Interior and chairman of the President's White House Conference on Child Health and Protection.

#### **Committeemen in American Legion.**

Dr. A. T. Finch, Chase City, has been appointed chairman of the rehabilitation committee of the Virginia Department of the American Legion; Dr. W. B. Peters, Appalachia, vice-chairman; and Dr. George S. Hurt, Roanoke, one of the members of this committee.

#### **Dr. G. B. Barrow,**

For many years at Clarksville, Va., is now an assistant physician at the Western State Hospital, Staunton, Va.

#### **Dr. George H. Snead,**

Richmond, Va., announces removal of his office to 407 West Grace Street, this city, where he will continue his practice in connection with Grace Hospital. His work will be limited to diseases of the eye, ear, nose and throat.

#### **Hopewell Board of Health Reorganized.**

The Hopewell, Va., Board of Health was recently reorganized and Dr. D. Lane Elder was made president, Dr. William M. Phipps secretary, and Dr. J. C. Bodow was appointed one of its members.

#### **Dr. J. M. Bishop,**

Appalachia, Va., is in Washington, D. C., where he is taking a year's special work in pediatrics at the Children's Hospital.

#### **Dr. H. C. Alexander, Jr.,**

For a time located at Farmville, Va., has moved to Newport News, Va., where he is associated with Dr. F. W. Poindexter, with offices in the Medical Arts Building.

#### **Dr. J. A. Lipnick,**

Recently of Norfolk, Va., announces his removal to Brooklyn, N. Y., where he has offices at 390 East 32nd Street, corner Avenue D.

#### **Dr. P. G. Hamlin,**

Recently assistant physician at Eastern State

Hospital, Williamsburg, Va., is now at Harrisburg State Hospital, Harrisburg, Pa., where he is acting temporarily as assistant physician.

### **The American Red Cross**

Appeals again this year for an endorsement of its activities by the people, through an invitation to enroll as members of that organization for 1930. Although the campaign is scheduled for November 11th to 28th, many communities establish booths for enrollment during October. Be sure to renew your membership so that you may have a part in the splendid work of the Red Cross.

### **Dr. R. H. Wright,**

Medical Arts Building, Richmond, Va., announces the association of Dr. Samuel P. Oast, recently of New York City. Dr. Oast will limit his practice to diseases of the eye.

### **School Children and Heart Disease.**

Ninety children out of 10,000 examined were found to have organic heart disease during a survey of heart conditions among public-school children recently conducted in Philadelphia, according to the supervisor of medical inspection of public schools of that city. The younger children showed slightly less disease than the older, and the boys slightly less than the girls. Heart disease is reported to be increasing among children from ten to fourteen years of age, and to be the principal cause of death during that age period.

### **The Association of Seaboard Airline Railway Surgeons**

Held its annual meeting at Virginia Beach, early in September, under the presidency of Dr. C. D. Christ, of Orlando, Fla. Nearly two hundred members registered attendance. Following a program of scientific papers, the members enjoyed a day of sight-seeing and pleasure. Dr. Goode Cheatham, Henderson, N. C., was elected president of the Association for the coming year; Dr. Herschel A. Smith, Americus, Ga., first vice-president; and Dr. J. W. Palmer, Ailey, Ga., was re-elected secretary-treasurer. Dr. Frank Eskridge, Atlanta, Ga., was elected new member of the executive committee. Other members of the executive committee are Dr. Joseph D. Collins, Portsmouth, Va., chief surgeon of the railway, chairman; Dr. J. P. Monroe, Sanford, N. C.; Dr. W. A. Boyd, Columbia, S. C.; Dr. L. S. Early, Petersburg, Va.; and Dr. J. W. Corbett, Camden, S. C.

### **Dr. John A. B. Lowry,**

Crewe, Va., is spending some time in New

York City, where he is doing post-graduate work. He was first at the New York Lying-In Hospital but is now at the New York Post-Graduate Medical School and Hospital. He expects to return home about the first of December.

### **Dr. and Mrs. Herbert W. Lewis**

And daughter, Mildred, of Dunbarton, Va., had a pleasant vacation last month, when they joined some friends in Washington, D. C., and went for an automobile trip to Baltimore and thence by the Susquehanna Trail to New York and Canada. They visited many points of interest en route.

### **Heads American Orthopedic Society.**

Dr. Willis C. Campbell, of Memphis, Tenn., an alumnus of the University of Virginia, Department of Medicine, was elected president of the American Orthopedic Society at its session held in London, England, during the summer.

### **Aberdeen's Maternal Mortality.**

A lower maternal mortality rate was found for mothers who received prenatal care in Aberdeen, Scotland, than for those who did not, according to the records kept during the decade ending in 1927. The medical officer of health of Aberdeen, in his recent report on these records, states that the evidence goes to show that improvement of prenatal services will result in an important reduction in maternal mortality.

### **Dr. Austin I. Dodson,**

Richmond, Va., by invitation, read a paper on "Some Principles in Bladder Surgery" before the annual meeting of the Seventh District Medical Association of South Carolina, held at Sumter, on September the 12th.

### **Dr. E. W. Buckingham,**

Messick, Va., on October the 1st moved to Newport News, Va. He will be engaged in general practice, with offices in the Medical Arts Building.

### **Grant for a Research Fellowship.**

Announcement has been made that the Maltbie Chemical Company of Newark, N. J., has contributed a grant for a research fellowship for the coming year to the Philadelphia College of Pharmacy and Science.

The research work to be done under this fellowship will be fundamental in character and will cover a study of the toxicity, pharmacology and bactericidal efficiency of creosote, creosote compounds, and constituents of creosote. The work to be done under this fellow-



ship follows the chemical researches on creosote of the past year under the Maltbie Chemical Company Fellowship at Princeton University.

The establishment of this research fellowship continues the policy of the Maltbie Chemical Company to contribute to the study of the chemistry and pharmacology of important drugs.

#### **Directs Nursing at Medical College of Virginia Hospitals.**

Miss Frances Helen Zeigler, R. N., former educational director and assistant director of nurses, school of nursing and health, University of Cincinnati, on September 1st became dean of the school of nursing and director of nursing service of college hospitals at the Medical College of Virginia, Richmond. Miss Zeigler is an alumna of Virginia Intermont College, Johns Hopkins Hospital School of Nursing, and Teachers College, Columbia University.

#### **Dr. W. N. Thompson,**

An alumnus of the Medical College of Virginia, after a service of over a year with Lewis-Gale Hospital, Roanoke, Va., has moved to Stuart, Va., where he is engaged in general practice.

#### **New York Diphtheria Rate Lowered.**

New York is winning a lower death rate from diphtheria as a result of the intensive immunization campaign being waged by the city's department of health and board of education. A decrease of nearly 29 per cent in the death rate from this disease and of more than 19 per cent in the case rate have been reported for the first half of 1929. The goal of this campaign is the immunization of every child between the ages of 9 months and 10 years.

#### **Dr. Fred J. Wampler,**

After studying at Johns Hopkins University, returned to Richmond, recently, and resumed his connection with the Medical College of Virginia as professor of preventive medicine.

#### **Dr. Conway Hiden,**

Of the class of '25, University of Virginia, Department of Medicine, has just opened an office at 98 Nassau Street, Princeton, N. J., and also became roentgenologist to Princeton University the latter part of September.

#### **Dr. C. Edward Martin,**

After a residence of some months in Murfreesboro, N. C., on account of his wife's

health, recently returned to North Emporia, Va., and located in his former home. He has an office at his residence and an office for certain day hours at the Greensville Drug Store.

#### **Dr. T. H. Clarke,**

Of the class of '25, University of Virginia, Department of Medicine, after practicing for a time at Bluefield, Va., recently located at Thorpe, W. Va.

#### **Gift to Woman's Medical College.**

Dr. Margaret P. Kuyk, Richmond, Va., has made a gift of \$1,000 to the Woman's Medical College of Philadelphia for preventive medicine work. We understand that this gift is to be repeated annually.

#### **London's Foundling Hospital Site May Become a Children's Park.**

Lord Rothermere has offered in the neighborhood of \$500,000 toward the purchase for a children's park of the former site of the London Foundling Hospital. This institution, which was made famous the world over by Charles Dickens in his novel, *Little Dorrit*, has recently moved to the country, leaving available a considerable piece of ground in a part of London greatly in need of park space. The only condition attached to Lord Rothermere's offer is that for one month each year the park shall be placed at the disposal of the British Boy Scouts for a camping ground.

This proposed gift brings to mind a remarkable bequest which the Foundling Hospital received nearly two centuries ago by the will of Handel, the German composer of the *Messiah*, who left it the score of that greatest of oratorios. Even during his lifetime the hospital funds had been enriched by about \$50,000 through his annual rendition of his masterpiece on the great organ which the composer himself presented to this children's asylum.

#### **Hawaii's School Cafeterias.**

The school cafeterias of Hawaii, started ten years ago, are supplying 22,000 of the 70,000 public-school children in that Territory with wholesome balanced lunches at five cents each. There are now seventy-five of these cafeterias.

#### **For Sale or Lease—**

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## Obituary Record

**Dr. George Taylor Klipstein,**

Alexandria, Va., died in Los Angeles, Calif. September the 5th, and his body was brought back to Virginia for burial. Dr. Klipstein was seventy-five years of age and studied medicine at Jefferson Medical College, Philadelphia, from which he received his diploma in 1880. He had practiced in Alexandria and Washington, D. C., for forty-seven years and had been a member of the Alexandria Hospital staff for all these years. We was an ex-president of the Medical Society of Northern Virginia and District of Columbia and had been for many years a member of the Medical Society of Virginia, and had served a term as a member of its council. His wife and two sisters survive him.

**Dr. George J. Williams,**

Died at his home in Hilton Village, Va., October 1st, after having been in ill health for over a year. He was sixty-two years of age and a graduate of the Medical College of Virginia, class of '98. Dr. Williams had been a member of the Medical Society for a number of years and had also served in the Council of the Society. He had been a member of the staff of the Elizabeth Buxton Hospital, Newport News, Va., for twenty years, and was a member of the Newport News Rotary Club and the Bremond Lodge, No. 241, A. F. & M. He is survived by two sisters.

**Dr. J. Alfred Riffe,**

Covington, Va., member of the Medical Society of Virginia, died August the 5th, at the age of forty-five years. His death was due to angina pectoris. Dr. Riffe was a graduate in medicine from the College of Physicians and Surgeons, Baltimore, Md., in 1909, and took an active interest in the medical affairs in his section.

**Dr. Asbury Carlton Swinley**

Died at his home in Winchester, Va., August the 30th, following a short illness with pneu-

monia. He was a native of Ohio and fifty years of age. After practicing pharmacy for several years, Dr. Swinley took up the study of medicine at the former University College of Medicine in Richmond, Va., from which he took his degrees of M. D., in 1908. He was a prominent physician in his section, a Mason, and a member of the Medical Society of Virginia. His wife, mother, a brother and a sister survive him.

**Dr. Waller Jameson,**

Roanoke, Va., died August 9th, after having been in bad health for some time. He was fifty years of age and studied medicine at the University of Virginia, from which he graduated in 1903. Dr. Jameson had been a member of the Medical Society of Virginia for a number of years.

**Dr. Samuel H. Mitchell,**

Elk Creek, Va., died at his home in that place, July 28th, as a result of heart disease. Dr. Mitchell was sixty-six years of age and graduated in medicine from the Medical College of Virginia in 1885.

**Dr. John W. Aylor**

Died at his home in Culpeper, Va., August 30th, at the age of eighty-seven years. He graduated at the University of Virginia medical school in the class of '68, after serving under Stonewall Jackson during the Civil War. Dr. Aylor had practiced in West Virginia for about forty years.

**Dr. Charles Williamson Richardson,**

Washington, D. C., member of the Board of Trustees of the American Medical Association, died in Boston, Mass., August the 25th, at the age of sixty-eight years. His death followed an operation performed recently. He graduated in medicine from George Washington University School of Medicine in 1884 and also received a degree in medicine from the University of Pennsylvania that same year. Dr. Richardson had been the recipient of many honors in the medical world. At the time of his death, he was emeritus professor of laryngology and otology at the George Washington University School of Medicine.

**Dr. Charles Willcox, M. C., U. S. A.,**

Washington D. C., died June 28th, at the age of sixty-four. He was an alumnus of the University of Virginia, Department of Medicine, class of 1889. Dr. Willcox retired from the Army in 1922, after thirty years of service.



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61st Annual Meeting, Medical Society of Virginia in  
Norfolk, Fall 1930

# Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

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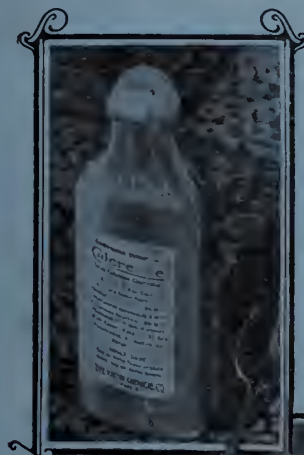
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## THE PHYSICIAN'S RESPONSIBILITY TO HIS PATIENT AND TO THE PUBLIC, AND THE PUBLIC'S OBLIGATION TO THEIR PHYSICIANS.\*

By J. BOLLING JONES, M. D., Petersburg, Va.

MR. CHAIRMAN, FELLOWS OF THE MEDICAL SOCIETY OF VIRGINIA, LADIES AND GENTLEMEN:

First, I wish to thank the Society from the bottom of my heart for the honor they have conferred upon me. It is deeply appreciated.

My professional life, as most of you know, has been spent mainly in what is styled, "the general practice of medicine," meeting to the best of my ability the needs of sick people in the office or in their homes. In addition, throughout my career, I have done most of the surgery developing in my own hands as well as quite an amount of surgery referred by professional associates. In other words, doing general practice and some surgery according to present day standards I have, as it were, now become a misfit.

A subject of interest to both the profession and the public, to be considered with profit to both, has been constantly in my mind. I love my work, love medicine and her traditions, and feel that I have a responsibility in maintaining her standards. All of us should.

Something original to offer you would be a delight. To you it may seem too elementary, but impelled by the mistakes which I have made and what I have observed in others, I have selected the subject: The Physician's Responsibility to His Patient and to the Public, and the Public's Obligation to Their Physicians. It is rather long, but I wish to discuss it with you briefly. To me it is timely in its entirety. The first part of it has weighed heavily on my mind throughout my professional life, and is still doing so. Properly considered, it should tend toward the settlement of some of the problems disturbing both

the profession and public. It recognizes a sense of duty and grave obligation.

The exercises today incident to the opening of the new medical school building have indeed been inspiring. We have had impressed upon us, not only what has been accomplished, but the wonderful possibilities that lie before us in the informed up-to-date practice of medicine. In spite of these facts, our profession does not occupy its high plane as of yore. The reverse should be true. The public seems to be advancing more rapidly than the profession as to the progress of medicine. They do not feel that their needs are being adequately met by the existing order of things. The average physician doing general practice, a good many in the cities, and a large number in the rural districts, are not satisfied with their status. They do not feel that they are being properly rewarded either financially or given the continued support they deserve. It is evident to any one that the intimate, cordial, sustaining relationship between physician and patient that once existed is disappearing. It must be restored for their mutual interests. Both sides are at fault for this unsatisfactory state of affairs. However, I believe the main fault lies with the profession and each must do his part in its correction, largely by a proper realization of his responsibility to each and every patient who places himself or herself in his care and to the public in general, particularly in public health matters. It is a grave responsibility that all must accept.

Let us reflect; medicine had its origin in sympathy and a desire to be of service to our fellow-man in sorrow, need, and sickness. In the Hippocratic Oath we are enjoined to enter homes only for the good that we may do. These were the kernels from which true medicine sprang and from which she still grows. Originally, purely altruistic; of course, today when it is our life work, giving our entire time, talents, and energy to meeting any and all of the various needs of professional work,

\*Address of the President before the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, Va., October 22-24, 1929.

we must live and meet expenses as the result thereof. Still the idea of service must always prevail as against reward. Otherwise, we as physicians are standing on dangerous ground. This principle must pervade the life of any one practicing medicine, be he general practitioner or specialist, and should be considered earnestly by every student and prospective student of medicine.

Formerly, all the needs of sick people were met by the men doing general practice. The standard of those men, that is, the character of their work was the standard of medicine at that time. They were able to hold their patients and satisfy their needs. It is passing strange that we of our day if we live up to the standards of our time can't do likewise. Today the needs of the sick are met by two classes of physicians. The general practitioner, and the specialist in some department; and the departments are increasing from year to year. One for old age will certainly come as soon as we are able to make enough people live beyond sixty to give him a sufficiently large clientele.

It is certainly a fact that co-incident with the growth of specialism two things occurred: first, the general practitioner began to take less interest in his work and to allow the standards of his work to be lowered; second, the lowering in the estimated value of the work of the general practitioner by the general public, even though his work might be gilt-edged as to efficiency.

I do not feel for a moment that these happenings were entirely in consequence thereof. We need a certain number of specialists. Specialists were needed as far back as the days of Hippocrates. Specialism in its true sense is of the greatest value. Most of the valuable achievements have been made by men who have devoted their lives in certain limited fields of endeavor. Quite a number of such men have belonged to this Society; some of them are with us tonight, and we honor them. Either intensive study and observation, or training under some master, has led them to enter their special fields from an honest feeling that, in this way, the needs of their fellow-men could better thus be met. Not only by the best application of what we know, but in also pursuing lines of investigation thus adding to medical knowledge. Medicine has large-

ly reached its majestic stature through the work of such men. I need not mention them; their names are familiar and are synonymous with service. Any man who enters any special field of medicine with an honest feeling that he has the equipment and can give the best service in this way, should certainly do so. They will certainly, like others before them, solve additional problems, adorn our profession, and lead to themselves a satisfactory life.

However, I am afraid some of our members enter special fields from the standpoint almost entirely of greater financial reward. They have caught the ear of the public who today feels that the term, specialist, as applied to any one, is synonymous with wisdom. It is largely so when applied to the true specialist, but the true specialist is not made over night. Simply announcing oneself a specialist or calling oneself a specialist adds no additional wisdom. So that the public is now troubled in determining in which specialist lies wisdom and honor and in which lies a species of hypocrisy. Let us so live as not to have quackery in our own midst.

It is largely by the unselfish work of master minds coupled with our own properly capitalized experience that we are enabled to meet the needs of individual patients and the public. Realizing responsibility necessarily implies the full realization of necessity and duty to keep ourselves up-to-date. I say Dury. Let us reflect: when we began, we were all required to pass a stiff examination before a medical examining board to show our fitness, and yet, from year to year, as long as we live, barring the actual commitment of a crime, the state grants us license without being asked any questions as to our continued fitness. This privilege is evidently based upon the belief that we are so imbued with the importance of our work that we will keep pace with new developments. What a compliment! What a grave obligation! It is well not to forget it. We can keep ourselves up-to-date by taking and reading a few good journals, attending and taking part in discussions in our local, district or state medical meetings, reporting cases or reading short papers, and above all, by studying each patient intensively and thus capitalizing our experience.

Two of your committees, one on post-graduate work and the other on medical education



and hospitals, have already arranged clinics at both of our medical schools. Other opportunities are in the making. It is up to us to take advantage of them. Particularly, the recommendations to be made by your committees on child welfare and maternal welfare cannot be carried forward unless the profession as a whole is behind them, willing to serve efficiently. It is to be regretted that we see so few of our members at the various meetings, usually the same faces. Cannot each one of us appoint ourselves a committee of one on absentees? Absentees owe it to their patients to take advantage of every opportunity possible to enable them to render more efficient service.

Though a few people are sufficiently informed to diagnose their own ailments and consult the right specialist and still a larger number are going to a clinic if one is convenient; the bulk of the work still falls initially at least on the shoulders of the general practitioners. Each one must stand ready and properly equipped to serve by day or by night even on Sunday. It is an arduous busy life, but to me delightful. Since they at least see the most patients, they have the greater opportunity of doing the most good. The work of the general practitioner in volume certainly ranks second to the work of the true investigator who may, as fortunately others have done, develop some important fact or principle and then even the general practitioners are needed in the field to apply what the investigator has already worked out.

The initial contact is of vital importance to every patient because his health, the most valuable thing he possesses, is at stake. It is of consequence to the physician in that the skill and judgment he manifests determines whether he is a fixture with the patient, his family, or possibly his friends. It is particularly vital to the patient if ill with any acute surgical condition. Frequently, the issues of life or death, a long or short illness, may have to be determined immediately. In so many instances it is only a matter of time that settles all these vital issues. Every doctor should see and have indelibly stamped upon him the difference in pathology of a few hours' duration when most any surgeon can cure it and that of two to four days when conditions are so horrible that often the skill of the most brilliant surgeon fails to combat it. Every

surgeon knows that he is still seeing too many tragedies. Let us try honestly to prevent them. They lie mostly at our door.

The prompt detection of the acute contagious infections not only enables us to save a patient's life, but protects the family and the community. In other words, in the initial contact with a case *careful* study is necessary. Patients today know it, they rightly expect it, and if we do not fulfil our obligation some one else will. The term careful is used purposely. It is practically always synonymous with safety so far as possibilities at the hands of any one go.

The correct approach in dealing with a sick person is comparable to the correct approach in dealing with a fracture. They both require the use of two simple principles; in the former, first make the diagnosis; second, administer the treatment; in the latter, first put the fragments in apposition and keep them there. Consider what catastrophies do occur when the order in either instance is reversed. Do not let us reverse it. No drugs should be administered except on a reasonable hypothesis and with the idea of, first, do no harm. It is wonderful what Nature undisturbed will do for her subjects. I would say the same applies even more strongly to the use of an ice-bag, particularly in acute abdominal conditions. The false security that it gives has been the direct cause of many delays that have caused death. Trusting to its usage has been more often disastrous than the injudicious use of morphine.

The general practitioner is not ordinarily expected to do complete work, but he is expected to do *SAFE* work. They have too many diversified conditions to consider to make it complete often, in every detail, but they will derive so much joy, satisfaction, and even reward from so using their talents as to keep the patients *SAFE* that some of them will try and even accomplish the making of certain features of their work complete in every detail and thus be still more useful.

Diagnosis is the most important feature of a general practitioner's work, and we must develop ourselves along this line. This is really our realm. Complete diagnosis is accomplished in three ways; the history of the patient, physical examination, and laboratory analysis; better accomplished in a well organized hospital or clinic; fortunately, how-

ever, a SAFE diagnosis such as is usually expected of us can be made from the history and physical examination alone, and we have the advantage of these two in the simplest homes. Of the two, the most important is the physical, and it is the most neglected. Patients notice this neglect and it is the greatest single cause of their leaving us. It convincingly impresses our concern. To me it is the most interesting feature of my work and it is indeed fascinating. When properly done, its revelations are usually convincing. In my judgment, grossly considered laboratory findings do not for a minute compare with the results of a complete physical examination. Any and all of us can learn to do this. It is extremely important to the patient and to ourselves. We have added to these two the fact that the state, through our Board of Health, furnishes us all of the real positive means of diagnosis from a laboratory standpoint. This is a great help not only to our patients, but to ourselves and is gratuitously given. I consider the State Board of Health our strongest ally and not our enemy, as too many think. It is our privilege and duty to stand behind all public health work that has saved and is saving so much sickness and possibly ultimate death.

Consultations should be urged by us particularly in all cases of extreme illness, or in any case where there is doubt either as to diagnosis or treatment. This necessarily implies that we ourselves have properly studied the situation. It is a recognition of the axiom that "experience is fallacious and judgment difficult," and that in "multiplicity of judgment there is wisdom." Consultations properly conducted always redound to the good of the patient and are of great help to ourselves.

The public is saying it is hard for them to get a general practitioner when they need him. I admit it is true. It is becoming serious. Our ranks are getting thinner. Those of us in it should stay there. The public needs us. Specialism is being overworked. Most specialists only see sick people in their offices at certain hours; a good many only by appointment. Unfortunately, people do not get sick or die by appointment. General medicine needs recruits, well equipped men, willing to serve. I really believe that the professors in our medical schools, while teaching the students, might guide a good many into the field

of general medicine where they are sadly needed. And here effectual service will as often as anywhere else receive its adequate reward.

To the public, however, I would say that you have the wrong idea in the appraisal of the value of different types of medical service. The man who makes a prompt accurate diagnosis to my mind has rendered the greater service, because on this depends largely the end results of surgery. You ordinarily pay your surgeon. See the matter in its true light and pay your general physician proportionately. Still further, when you have paid his bill, do not think that you have paid him all that is due him. You are still under an obligation. Your forefathers felt this way. When taken sick again, go back to him, be loyal; he is entitled to it. Encouragement and support give him strength to keep himself posted. Understand, I would not for a minute have you or your loved ones remain in the hands of an incompetent physician; I would not do this myself. Incompetency, I deplore. It is inexcusable in the light of today's possibilities. At least be loyal and just to those who are loyal and efficient. We too often hear the admission from patients coming to us that they have competent physicians but that they have paid their bills and therefore have an entire right to change doctors whenever they please. In my judgment you are wrong. It is a very ungrateful attitude and a disturbing influence in what was once a beautiful relationship. We are not a commercial profession, but still entering your homes primarily to relieve suffering and save lives.

*431 West Washington Street.*

### MARION SIMS.\*

By SOUTHGATE LEIGH, M. D., F. A. C. S., Norfolk, Va.

Marion Sims was one of the greatest pioneer surgeons of this country and is rightfully called "the Father of Gynecology in America."

He was born in 1813, in Lancaster County, South Carolina, of mixed Scotch and English descent. Graduating in arts from the College of South Carolina, he studied medicine in the office of Dr. B. C. Jones, of Lancaster, and at the Charleston Medical College, receiving his M. D. degree from Jefferson College in Philadelphia.

He did general practice for a short time in

\*Read before the fifty-ninth annual meeting of the Medical Society of Virginia, in Danville, Va., October 16-18, 1928.



South Carolina and then moved to Mt. Meiggs, Alabama, and later to Montgomery where he engaged in general surgical work, establishing a splendid reputation by his skill and ingenuity. He soon became deeply interested in the surgical diseases peculiar to women, and had abundant opportunity to practice on vesicovaginal fistulae among the slave women of that section, many of whom were suffering from that most trying affliction which, up to the time of Sims' work, was considered incurable. The wide prevalence of this loathsome condition was due to the fact that most of the women were attended by ignorant midwives, whose utter lack of training or skill was responsible for this and for many other afflictions with which the women of those times were afflicted. The medical profession had not attained to the necessary knowledge in those days to handle these cases in a curative way, and the poor creatures were forced to suffer and live as best they could.

Sims felt that surgery could relieve them, and proceeded to make innumerable attempts towards relief. He went so far as to open a modest hospital for these cases, keeping them at his own expense and for considerable periods of time. He gave a great deal of thought and time to their afflictions and devised various instruments and suture materials for their relief. His sympathy was great, and he believed firmly that success would come if he tried hard and long enough. Many of the women, hopeless of relief, in any other way, and knowing that they were doomed to a life of misery, affliction and helplessness, permitted him to operate on them over and over again.

The invention of the wonderful speculum, which bears his name, came about following a serious accident to a young woman of Montgomery who was thrown violently from a horse, causing a posterior displacement of the uterus, accompanied with severe pain. He placed the patient in the knee-chest position, in which he could better give relief, and found that he needed an instrument to aid him. His wonderful ingenuity came to his aid and he made use most successfully of a tablespoon, which he bent at the necessary angle. From this simple device came the great speculum, which has been used the world over and which did so much to make his work successful among refined and sensitive women. Finally, success was his and he became able to cure permanently many of

the afflicted ones in whom he was so deeply interested.

How remarkable was his ingenuity! These troublesome and loathsome conditions confronted him. He was firm in the conviction that they could be relieved. But how?

He had no teachings of other men to guide him. The medical world was in the same quandary as he. He had no one to advise him. His tremendous sympathy goaded him on, strengthened by his deep conviction that relief could be given, and aided by his wonderful store of common sense and mechanical skill.

His success was the more remarkable because of the fact that all of this occurred before the days of antisepsis. A new era had dawned in surgery. Sims, unaided, had revolutionized the treatment of the diseases peculiar to women. His practice increased enormously and his fame extended the world over.

Largely on account of poor health, Dr. Sims moved to New York City in 1851 and bought a home on Madison Avenue. Finding that hospital facilities were essential to his practice, which was then confined entirely to gynecology, he interested many of the good people of the city in founding the Woman's Hospital of New York, first in a temporary and later in a permanent home. This was open also to all reputable local physicians.

Later, he visited Europe and was splendidly received by the leaders of surgery in Ireland, Scotland, England and France. He was called upon repeatedly to perform the operations which he was doing so successfully in his own country. He attended many of the royalty, including the Duchess of Hamilton, and later the wife of Napoleon III.

On account of our Civil War, Dr. Sims remained in Europe for some time, and took the opportunity of writing his first book, entitled "Clinical Notes on Uterine Surgery," which was most radical and resulted in revolutionizing the practice of gynecology. Dr. Thomas Addis Emmett wrote regarding it as follows: "Its publication was the turning point of modern gynecology, or, more strictly speaking, American Gynecology, of which he may justly be termed the father."

Dr. Sims resumed his practice in this country in 1872, was president of the American Medical Association in 1876, and president of the American Gynecological Society in 1880.

His untimely death came in 1883, due in-

directly to a violent attack of pneumonia two years before.

In the words of his friend, Dr. Baldwin: "Gynecology today would not deserve the name of a separate and cultivated science but for the light which Sims' speculum and the principles involved have thrown upon it."

To my mind, one of the greatest accomplishments of this wonderful man was to teach surgeons the necessity of gentleness, kindness, consideration and delicacy in the difficult classes of cases that he labored among.

Quoting Sims' own words: "It has been objected to this speculum that its use requires the assistance of a third person. Apart from its real value, there could be no stronger reason for its universal adoption. I insist that a third person should always be present on such occasions. Delicacy and propriety require it and public opinion ought to demand it."

"I am sure that I never made a vaginal examination or used a speculum a dozen times in my life without the presence of a third person. We are too apt to disregard the innate feeling of delicacy when we have been so much used to hospital practice; but we can never make a mistake if we always cultivate the same gentleness and kindness toward the poorest hospital patient that we would use toward the highest princess. We should never in our examinations allow any exposure of person, not even in hospital practice."

In his day, multitudes of women suffered and died from lack of simple attention, because the detection and treatment of their complaints necessarily subjected them to ordeals that they were not willing to undergo. And today the same situation exists to a great extent. In a way we have to a certain degree gone backwards.

For a number of years following Sims' teaching, the profession was eager to adopt his instruments and methods. Led by such great surgeons and teachers as Emmett, Thomas and Mundé, Sims' methods became popular all over the country and especially in the East. In the splendid book written by the last two appeared the following: "The Sims' speculum is now used by every physician who makes a pretence of examining and treating uteropelvic diseases after the most approved fashion. . . . Its use is taught in all our colleges and hospitals; all modern textbooks describe it; and there is

no longer any question as to its preeminence over all other specula."

A few years ago, feeling that the profession was getting away from Sims' teachings and refined methods, the writer addressed a questionnaire to the members of two National Gynecological Societies. Out of 134 replies, only 33 are using the position regularly in examination and treatment; 31 have never used it; 64 either use it occasionally or rarely and 6 formerly used the position but have given it up.

In order to learn the situation in the educational line, we addressed the following letter to each professor of gynecology in Class A medical schools in this country: "Sims' position in gynecology was formerly used extensively by the profession. A questionnaire sent out by me to the members of two gynecological societies seems to show that it has fallen almost completely into disuse. I am preparing a paper on this subject. In order to explain the situation correctly, it is necessary to find out the attitude of the medical colleges. Will you be kind enough to write me as fully as you can, stating your opinion of the position, and to just what extent it is presented to your students?" Out of 37 replies, 6 do not recommend the position; 13 use it rarely, 10 occasionally, and 6 advocate it more or less strongly. From their letters, we would infer that with the exception of the six last mentioned the subject is not presented in a practical way to the students.

I am satisfied that the great success attending Dr. Sims' efforts, and those of his immediate successors in this country, *was due largely to the decent, refined methods used by them in the examination of their women patients.*

I also feel that the main reason the profession has been so unsuccessful in combating cancer among women, is that these methods are not now so extensively in use.

Almost every other principal disease that flesh is heir to is being controlled except cancer. It is hardly necessary to mention tuberculosis, malaria, yellow fever, syphilis, and many others. *But cancer is not under control* and the profession is feeling its helplessness, especially among women.

Frankly, the object of this paper is to stress this weighty point. The situation is a very bad one. Cancer is certainly not on the decrease, although it should be. The public does



not understand that it is preventable and curable *in at least 90 per cent of the cases*, and yet as a matter of statistics the mortality is exceedingly great.

The American Society for the Control of Cancer, well financed and working with well directed system and determination, is making every effort to educate both the public and the profession in regard to the disease, how to prevent it and how to cure it.

As regards cancer in women following diseases peculiar to that sex, I am profoundly of the opinion that the problem is to get women to be examined. Periodical and regular health examinations have become, during the past two or three years, very popular with men, but not with women. Women must be taught that cancer is practically always preceded by abnormal symptoms and conditions which must be promptly investigated and treated. Leucorrhea, usually looked upon by women as disagreeable, but harmless, is a danger sign, and may be from a condition leading to cancer. Profuse menstruation and flow between the periods may be a sign of danger. Bloody flow or leucorrhea after the menopause is alarming and demands immediate investigation.

They must not consider the condition as harmless and trivial. *The simplest may be the forerunner of cancer.* An examination will tell. Treatment may be simple and may often be given by the family doctor. Women should confer with their doctors, and the doctors should speak constantly to their patients, about these matters.

The most unfortunate thing about cancer and the conditions leading to it is the lack of pain. Women are lulled into a feeling of security on account of the absence of pain. Almost every abnormal condition should be looked upon by patient and doctor as potential cancer. The women in the country districts and the smaller communities are the greatest sufferers. In the cities the situation is somewhat better, on account of propaganda and free clinics.

My appeal to the general practitioners is that they do more to educate the women as to the danger signs, and urge investigation, and, following the teachings of that great master of gynecology, Marion Sims, that they arrange their offices, with regular hours and a woman attendant so that their examinations may be done, thoroughly *and in the most refined and decent manner.* This means Sims'

position and Sims' speculum. The expense of such arrangements is very slight, and the convenience great.

My appeal to the public is for cooperation in urging the periodical examination of women so as to detect pre-cancerous and early cancerous conditions. Each woman's organization should have a committee on cancer education, and should not be content until the matter has been placed in simple, understandable language before every woman of the community, regardless of age, color or standing. The local doctors are always ready to respond to calls for such work, and the members of the Woman's Auxiliary to the various local medical societies would be deeply interested and helpful.

With your permission, I would say a word about the Woman's Auxiliary to the American Medical Association, which was founded only five years ago. In that short time it has enrolled 10,000 members of the doctors' families, has organized in thirty states, and is in process of organization in seven others. At the last general meeting in Minnesota, there were 600 in attendance.

The people of Virginia are very conservative and at times a little slow to adopt new things. The doctors of Virginia and the members of their families have not fully realized what great good is coming to our sister states from organized medicine. Our State Society is not fully organized. There are many counties without local societies. The same is true of the Woman's Auxiliary. There should be a local society in every county in the State, if only a "skeleton" one, and a Woman's Auxiliary to aid in the work. The women members of the doctors' families can do more than any other class of women to direct public sentiment along the right lines of health and safety.

After an insistent demand extending over several years, the American Medical Association began the publication of the greatest health magazine in the world, *Hygeia*, and at a considerable monetary loss. Year before last the deficit was \$34,000.00. The Woman's Auxiliary has since then actively sponsored the publication, and seen to its very wide circulation where it can do the most good, with the result that during the past year the deficit was wiped out and a profit of \$11,000.00 shown. The Auxiliary is doing splendid work in educating the public in various important ways, and especially in telling the "true story of

medicine" to the public. With its active aid the prevalence of cancer in the State can be greatly reduced. For these and various other good reasons I would urge the doctors and the women of their households to push the organization of the Woman's Auxiliary so as to cover every part of the State.

If Marion Sims were alive today, he would be astounded to know of the wide prevalence of cancer among women, the more so because it should not be. To the doctors he would insist that every general practitioner become to some extent a gynecologist, so that he might detect those simple conditions which lead to cancer, and that the women be closely questioned as to the very simple and often apparently harmless signs and symptoms of those conditions which lead to cancer. To the women he would explain that cancer is simply a "craziness" of the tissues of the body, "normal tissue gone wild," a rapid multiplication of normal cells, due always to irritation of one kind or another; that various minor conditions produce this irritation, which sooner or later will make the cells "crazy;" that all of the minor conditions or ailments, however slight, must be promptly cured, by whatever means appears best to the doctors.

The situation is a dreadful one. Too many women in the prime of life are applying for aid when it is too late, when the terrible disease, cancer, has developed too far to be eradicated. The situation is a pitiful one because the bad condition could have been prevented in nearly every case. I say that if Marion Sims were alive today he would do all of these things and help to save many, many valuable lives and prevent untold suffering. He is not here, but his teachings are here in his stead. Let us, then, all of us, doctors and public, push this great work as it should and must be done.

In conclusion, allow me to read the inscription on the monument erected to the memory of Dr. Sims in Bryant Park, New York, N. Y.:

"J. Marion Sims, M. D., LL. D.

Born in South Carolina 1813.

Died in New York City 1883.

Surgeon and Philanthropist

Founder of the Woman's Hospital of the  
State of New York

His brilliant achievements carried the fame of  
American Surgery

Throughout the civilized world

In recognition of his services in the cause  
of science and mankind

He received the highest honors in the gift of his  
countrymen and decorations from the govern-  
ments of France, Portugal, Spain, Belgium,  
and Italy."

On reverse:

"Presented  
To the City of New York  
by  
His professional friends,  
Loving patients,  
and  
many admirers  
throughout the world."

The Woman's Auxiliary in his native state has sponsored a movement for a monument to this great man which is now nearing completion.

109 College Place.

### FACTORS IN THE PROGNOSIS OF ARTERIAL HYPERTENSION.\*

By BLANTON P. SEWARD, M. D., Roanoke, Va.  
From the Medical Department, Lewis-Gale Hospital.

Chronic hypertension may be considered a symptom of vascular disease. Morphological studies in cases of long standing hypertension have shown that the lesions are similar though their distribution varies. The sclerosis may be found mainly in the arterioles as in essential hypertension;<sup>1</sup> it may be pronounced in the larger arteries with less involvement of the small branches, as in senile arteriosclerosis; or the lesion may have advanced more rapidly in one organ, as for instance, the kidney. There are few, if any, symptoms in the early stages of the disease, except the increased blood pressure, but, as the lesion progresses, the impaired blood supply incident thereto alters the function of the heart, brain and kidneys—organs which are especially sensitive to changes in their blood supply. In one case the symptoms may be referable chiefly to one organ, while in another case it may be difficult to decide which organ is more severely affected. The clinician should always bear in mind the fact that the symptoms are not merely the expression of local disease, but of a general circulatory disturbance.

Since the vagaries of vascular disease are many, prognosis is always difficult, especially when the increased pressure is unaccompanied by other symptoms. In the midst of apparent health, cardiac decompensation, cerebral hemorrhage, or uremia may develop. After the symptoms of cardiac, cerebral or renal disturbances appear, one may predict, though not always with certainty, in what manner death

\*Read before the Roanoke Academy of Medicine, April 22, 1929.



will occur. However, an intelligent although by no means infallible prognosis may be made by a consideration of the level of the blood pressure, the condition of the myocardium, the condition of the cerebral vessels, renal function, and the manner in which the symptoms respond to treatment.

#### THE LEVEL OF THE BLOOD PRESSURE

In the early years of sphygmomanometry, the systolic pressure only was regarded as important, and all statistics regarding longevity are based on the systolic reading. As our knowledge of the physiology of the circulation has advanced, the importance of the diastolic pressure in maintaining a uniform flow of blood through the organs and tissues has become better appreciated. The diastolic pressure is less subject to variations than the systolic and, when it varies, its fluctuations are not as great. On account of its constancy, more information is gained from it, and a blood pressure reading that does not give the diastolic is not complete.

The height of the diastolic pressure is a better index to the diagnosis and prognosis of hypertension than the systolic as the diastolic represents the pressure in the artery between ventricular contractions. Just in proportion as the diastolic reading is persistently above the normal figure does it suggest permanent changes in the arterial walls and a reduction in the functional efficiency of all parenchymatous organs consequent upon a diminution in the rate of flow of blood into these organs. And in proportion as the diastolic pressure is elevated does it mean greater stress which the arterial walls must withstand, and an increased resistance which the left ventricle must overcome in forcing blood into the arteries. The diastolic pressure, is therefore, of greater importance in the judging of longevity than the systolic pressure.

A moderate increase in the diastolic pressure, 90-100, is compatible with many years of life. Generalized arteriosclerosis is found in persons in whom the diastolic pressure shows a slight elevation in comparison with the systolic. As a rule, the finding of an increased systolic pressure with a less proportionate increase in the diastolic is a more favorable augury than a proportionate increase in both pressures. A diastolic pressure constantly between 100 and 110 is a less favorable sign. When, however, the systolic pressure

remains below 200 and the diastolic below 110, the heart not much enlarged, the urine free of albumin and casts, the renal function good, and the eye grounds show no special changes, the prospect for several years of life is good. A diastolic reading maintained constantly at a level of 120 or higher means a short duration of life, usually not more than two or three years.

The age of the individual at the time the hypertension is discovered, is an important consideration in the prognosis. Long life is compatible with the senile type in which the diastolic pressure is slightly elevated, and with good cardiac and renal function these patients live to an advanced age, when they die of cardiac decompensation or some intercurrent disease. On the other hand, when hypertension develops before or during middle age, the pressure often is high and the progress of the disease more rapid.

#### THE MYOCARDIUM

The prognosis of hypertension depends less upon the height of the blood pressure than upon its effects on certain organs. The effects on the heart of increased blood pressure are the most important since every hypertensive patient who escapes death from apoplexy, uremia or some intercurrent illness will eventually succumb to heart failure. The most common form of heart failure is that associated with hypertension, and it is the cause of death in approximately 60 per cent of patients with high blood pressure.

The heart hypertrophies in every patient suffering from hypertension. In its earlier stages the hypertrophy affects mainly the left ventricle. Later as the left ventricle weakens, the right ventricle enlarges subsequent to the increased tension in the pulmonary system. Finally, there is an increase in the size of the heart in all of its diameters. Varying degrees of cardiac enlargement are found due probably to the amount of peripheral resistance and the rapidity with which the hypertension develops. A slowly developing hypertension gradually increases the work of the heart, the myocardium is not burdened with an excessive amount of work, its reserve strength is not suddenly exceeded. The degree of hypertrophy in this instance is more likely to be moderate and the heart may maintain the circulation in an adequate manner

for years before signs of failure occur. On the other hand, in a more rapidly developing hypertension, the cardiac muscle fibers may be injured by stretching and dilatation, and the limit of physiological response quickly exceeded. A greater degree of hypertrophy probably takes place and heart failure develops earlier than in the patient whose blood pressure rises gradually.

It would seem that when the heart hypertrophies, especially when the hypertrophy has developed gradually, it could accomplish the extra work with greater ease. However, the strength of the hypertrophied muscle does not necessarily increase in proportion to the increase in its weight. In addition, there may be no increase in the amount of blood circulating through the coronary vessels hence the capabilities of the enlarged muscle may be restricted. A simple hypertrophy of the muscle is not all that takes place. The changes that have occurred in the arterial walls elsewhere in the periphery of the body have at the same time taken place in the coronary arteries. Pathologists state that moderate to severe degrees of coronary sclerosis occur in about 22 per cent of hypertensive hearts, and in many instances the aorta also shows enlargement with atheromatous areas. As a result of the sclerosis of the coronary arteries, the volume of blood circulating through these arteries is reduced, the muscle fibers do not receive sufficient nutrition, degeneration occurs and areas of fibrosis have been found when there is much coronary involvement. The functional efficiency of the myocardium is reduced in proportion as the muscle is the seat of organic changes.

It would be interesting to know the exact increase in the amount of work of the heart in hypertension. Fahr<sup>2</sup> calculated that with each contraction, the left ventricle performs 98.6 gram meters of work in forcing 80 c.c. of blood into the arterial system when the blood pressure is 120 systolic and 80 diastolic. When the pressure is 240 systolic and 130 diastolic he found the work of the ventricle is increased 95 per cent, and in generalized arteriosclerosis with a systolic pressure of 185 and a diastolic of 80, the work of the heart is increased 40 per cent.

Notwithstanding the excessive work imposed upon the heart, evidences of myocardial insufficiency do not appear as a rule until many months or years have elapsed. The symptoms

vary from those of a moderate diminution in the cardiac reserve power, such as mild dyspnea and palpitation, to those of definite decompensation. Symptoms of cardiac disturbances are the first complaints of a large proportion of hypertensive patients while in many other patients with high blood pressure the severity of the symptoms referable to the heart dominates the clinical picture. On examination there will be an increase in the areas of cardiac and retrosternal dullness; a diminished quality to the muscle element of the first sound, from which we may infer that the myocardium has undergone some changes; murmurs may or may not be present until dilatation has occurred; irregularities in rhythm may be noted. An increase in the heart rate and frequent premature systoles, especially if increased by effort, are indicative of myocardial insufficiency. A decline in the systolic blood pressure, if not attributable to therapeutic measures, and if associated with increasing subjective discomfort, indicates myocardial exhaustion. Tachycardia, gallop rhythm, and extrasystolic arrhythmia when found existing in combination or in persons who are having nocturnal asthma, angina pectoris or edema, enable us to foresee the imminence of failure of the left ventricle. Fahr<sup>3</sup> estimates that 5 per cent of all hypertensive patients will give a history of angina pectoris either in its classic or less typical forms. We wonder why angina pectoris or coronary thrombosis do not occur more frequently. When the clinical signs point toward a coronary involvement, the electrocardiograph will give helpful information. The inversion of the T waves in Leads I and II, or a splitting of the QRS group, or evidences of branch block are suggestive of coronary sclerosis, especially if the patient has had angina pectoris. Hypertensive hearts do not long survive a combination of a very high blood pressure and a moderately severe to a severe coronary sclerosis.

#### THE CEREBRAL VESSELS

Next in importance to heart failure, cerebral hemorrhage is the most frequent cause of death in hypertensive patients. There is no way of judging the condition of the cerebral vessels except by the symptoms. The appearance of the retinal vessels on ophthalmic examination is suggestive evidence of the condition of the nearby cerebral vessels, and of the peripheral vessels elsewhere in the body. Sclero-



sis of the retinal arteries with hemorrhages into the retinae may be found before the palpable arteries show many sclerotic changes or other symptoms appear, and the higher the blood pressure the greater the incidence of arteriosclerotic retinitis. Retinal hemorrhages and areas indicating old hemorrhages are often found in patients who live many years, hence hemorrhages into the retinae may in some cases of moderate hypertension have no prognostic value. However, the presence of retinal hemorrhages increases the possibility of cerebral hemorrhage occurring in those patients who have retinal arteriosclerosis and a high diastolic pressure. In chronic nephritis with hypertension, the retinitis is more severe. The presence of the white patches and hemorrhages in the retinae, with edema of the discs, tortuosities and engorgement of the blood vessels, signify an early termination of life, usually within a few months.

#### RENAL FUNCTION

Microscopic evidences of kidney disease have been found in the post mortem examination of hypertensive patients. Although in many instances the kidneys show great structural change, yet renal insufficiency of a severity great enough to result in uremia rarely occurs. There is no way to determine the bearing the kidneys have on prognosis except by estimating their function. A number of tests have been devised for this purpose. The ideal test would be one that detects and measures impaired function caused only by renal disease, but unfortunately no test now employed meets this goal since the milder grades of renal functional impairment are often due to extra renal and temporary causes as well as to renal disease. The value of these tests depends upon the degree of departure from the normal, the conformity between the several tests, and their interpretation in the light of the clinical history.

Perhaps the most useful of all laboratory methods which aid in recognizing renal disease and in following its progress are the phenolsulphonephthalein excretion test and the blood urea estimation. The greatest usefulness of the 'phthalein test is in revealing nephritis in which the urinary changes are often the least striking, as the percentage of the dye excreted in two hours is a fairly satisfactory index to the extent of pathological changes in

the kidneys. A gradual depression of 'phthalein excretion is an ominous sign and, when the level of the secretions falls below 10 to 15 per cent, it may usually be interpreted as forecasting an early termination of life.

The blood urea estimation is an eminently useful test of renal function as it reveals the ability of the kidneys to eliminate the products of protein katabolism. Owing to the wide range of normal variations in the urea content of the blood, blood urea determinations may fail to reveal the real condition of the kidneys in slight and moderate grades of insufficiency. When the level of the blood urea is under 40 mgs. per 100 c.c., it is of little value in prognosis. A constant blood urea level above 40 mgs. means a chronic nephritis, providing there is no cardiac decompensation, anuria, destruction of renal parenchymal tissue by infection, or intestinal obstruction. A permanent retention of nitrogenous substances in the blood in cardio-vascular-renal disease indicates a lowered kidney permeability, below which these substances are not excreted. Patients may live for months with a blood urea of 40-50 mgs., but, if under treatment the level of the urea cannot be lowered below 40 mgs., the prognosis is poor. A more rapidly fatal termination may be predicted in proportion as the urea retention is above 50 mgs.

The curves of the blood urea determination and of the phenolsulphonephthalein excretion are of greater value in estimating kidney function since a general parallelism usually exists between an increase of urea in the blood and a decrease in the amount of the dye excreted in the urine. From a study of these curves we gain more information concerning the progress of the disease. A patient with a 'phthalein excretion of 15 per cent and a blood urea of 60 mgs. or more indicates poor kidney function. If a week later the case shows excretion of only 15 per cent of the dye and a blood urea of 45 mgs., we would infer that the urea has been reduced by treatment, though the excretory ability of the kidneys has remained the same; hence, the patient's renal function has not essentially changed. A patient with a persistently low 'phthalein output and a high blood urea usually dies within two years.

Our study of renal pathology should not be limited to the functional tests for much prognostic information may be gained from careful and repeated examinations of the urine,

observing the specific gravity, the albumin and the type of casts. A study of the twenty-four hour urine should be made, noting especially the relationship between the intake of fluids and the amount of urine excreted. A persistently low or fixed specific gravity indicates the inability of the kidneys to excrete a concentrated urine, and if the night quantity is increased out of proportion to the day quantity, the concentrating ability of the kidneys is so impaired that they must excrete a larger quantity of urine in order for the diluted solution to carry off the solids which should be eliminated in the twenty-four hours. The type of casts and cells and the amount of albumin found in the urine give more accurate knowledge of the degree of activity of the renal disease. Granular and cellular casts with blood cells indicate considerable activity. Their continued presence in the urine indicates a progression of the renal lesions. The appearance of albumin and casts in urine that had not previously shown them is evidence of extensive renal involvement, provided there is no circulatory stasis due to myocardial insufficiency.

#### REACTION TO TREATMENT

While the importance of evaluating the physical condition cannot be too strongly emphasized, equally important in forming an idea of prognosis in hypertension is a study of the patient's habits and mental attitude. The type of symptoms and particularly the reaction of symptoms to treatment have a considerable bearing in forecasting the course of the disease. Some patients persist in their strenuous activities heedless of the dangers involved, thereby shortening their lives. On the other hand, the patient, who, by readjusting his mode of living, experiences fewer subjective sensations and whose blood pressure maintains a lower level, may live a fairly long and active life. There are notable examples of such persons whose health has been improved and whose efficiency increased even though their blood pressure remained above the normal. Changes in the patient's symptoms often suggest either an impending cardiac decompensation, cerebral hemorrhage or uremia. Increased nervousness, headaches, dyspnea, angina pectoris, consciousness of heart action, digestive disturbances or disturbances in vision should be carefully noted by the physician. When cardiac

or renal symptoms persist, or the blood pressure continues at a high level, the patient's outlook is gloomy.

#### CONCLUSION

Hypertension is a symptom of vascular disease, the clinical course of which varies according to the site of the sclerosis, the rate at which the lesion progresses, and the extent of the involvement of the heart, cerebral vessels, and kidneys. The prognosis of high hypertension is uncertain, though by careful consideration of all facts pertaining to the cardiovascular-renal system and to the individuality of the patient, we may frequently predict the probable course of the disease.

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### SOME OF THE FUNDAMENTAL CAUSES OF ALCOHOLISM AND SUGGESTIONS AS TO TREATMENT.\*

By W. C. ASHWORTH, M. D., Greensboro, N. C.  
Glenwood Park Sanitarium.

Before reading my paper, I wish to express my sincere appreciation of the invitation of Dr. Dodson and other members of the Staff of St. Elizabeth's Hospital, for the privilege and honor of reading a paper before you.

The subject of alcoholism is age-old, and from time immemorial the solution of the problem has elicited the thought of the best intellects of both laymen and members of the medical profession. I am sorry that I will be unable to give you any new thoughts on the subject, but will, in the short time allotted to me, endeavor to give you some of the outstanding and salient features of alcoholic habituation, and some suggestions as to treatment.

It seems, from the earliest days of antiquity, as recorded in history, both Biblical and secular, that the human race has craved artificial stimulation, and the alcoholic content has been considered an important and integral part. The title of my paper was suggested because of the wide and prevalent belief among a large percentage of the members of the medical profession that habit diseases are largely voli-

\*Presented before the Staff Meeting of St. Elizabeth's Hospital, Richmond, Va., May 29, 1929.



tional and therefore no real cause is responsible for them.

It has been my privilege, during a period of nearly twenty-five years, as Medical Director of an institution, to observe and study this large and increasing class of cases with a degree of accuracy and care that is scarcely possible for the general practitioner. I have, during this time, been intimately associated with a large number of alcoholic patients who, in many instances, seem to take special interest in confiding in me because of their habits and resulting diseases.

I am convinced, from my study of this class of cases that many, in fact the major percentage of my cases, have been victims of environmental conditions, sufferers from various physical and mental infirmities, which have acted as an exciting if not the primary cause of habit formation. It is signally unfortunate for most of us that we are victims rather than masters of our environment and circumstances.

I purposely do not emphasize very strongly the rôle that heredity plays as a cause for habit diseases. I am mindful of the fact, however, of the verity of the Scriptural injunction, "The sins of the fathers are visited upon the third and fourth generation." I believe, however, in many instances that the individual born of alcoholic parentage is more susceptible to environmental influences than the person who is born of sturdy ancestors. I have frequently observed that the weakling of poor resisting powers frequently can be made strong by removal from the enervating influence of unhealthful environment; therefore heredity only acts as a predisposing rather than as an active cause in the development of habit diseases.

The average individual, especially the average business and professional man, many times feels his inability to cope successfully with the exigencies of life. In other words, nature has failed to endow a number of us with sufficient mental, physical and moral stamina to enable us to meet successfully and heroically the succession of reversions and disappointments that so often crowd upon us.

With the above premises as a basis for the cause of habit disease I am forced to conclude that a habit in the large majority of cases represents a form of cowardice. The individual confesses his weakness to meet his competitor or brook the disappointments of life by taking into his system some stimulant that will make a grief less poignant or give him

a certain amount of oblivion to the stress and strain incident to everyday life. We are all fully cognizant of the fact that artificial stimulation or unnatural oblivion is disappointing and therefore the misguided individual has a rude awakening to the fact that instead of being better prepared to meet his adversary or competitor he is only left puerile and emasculated to engage in the turmoil of life.

I have been reading with much interest recently, "Psychology of Every Day Life," by Professor Freud, of Vienna. I believe with the above author that the emotional part of our life is not given due consideration. In fact, I am convinced that excessive whiskey stimulation often arises in the emotion of the individual. I do not believe, as many of my confreres no doubt think, that the habitue wantonly dissipates, but in many instances the major part of habitues not only feel but have a real physical or emotional need of a stimulant. I admit, however, that it is not always possible to find the real clinical entity or physical need for the stimulant, but with a careful and painstaking study of the case I am sure that in most cases the reason for the habit can be found somewhere in the physical, emotional or mental condition of the patient.

My conception of the cause of the habit diseases naturally makes me feel disposed to throw "The mantle of charity" over a large percentage of these cases; in fact, I find myself becoming more tolerant *pari passu* as my experience increases with this class of cases. The verity of the old saying, "We do not always know where the shoe pinches the other fellow," is frequently before my mind when confronted with the unfortunate alcoholic patient. I believe that our failure to understand the fundamental causes of habit diseases is due rather to our desultory and hasty examination of them rather than to the absence of the causes as above outlined. It is quite natural for most of us, when an alcoholic presents himself for treatment, to dismiss the case as quickly as possible with the belief that he is a wilful pervert and scarcely deserves the taxing of our resources in his behalf.

It would consume entirely too much valuable time of this meeting and unduly prolong the length of this paper for me to undertake to enumerate the various physical causes responsible for the formation and continuation of whiskey addictions.

A case has just come under my notice, how-

ever, within the last few weeks of a prominent business man who presented himself to me for treatment for the whiskey habit. On casual examination I really could not determine any reason why this man should drink whiskey to excess. It appeared on superficial examination of the case to be one of a few instances where a man was drinking whiskey to excess from his own volition rather than from any physical need for the stimulation. After a more careful examination, however, I ascertained that the man was suffering from high blood pressure and all the attending nervous symptoms, which were no doubt responsible for his excessive use of whiskey. It may be interesting to know that, with the judicious use of the nitrates, electric light baths, and proper attention to diet regime, this patient soon lost his craving for alcohol. I have no doubt the results of my treatment for him will be mutually satisfactory. It is obvious, however, that any treatment directed to his habit *per se* rather than to the fundamental cause would have been absolutely valueless.

Aside from the actual disease of the individual which demands relief by the use of stimulants, we frequently encounter the neurotic who has no demonstrable disease, but whose suffering or discomfort is largely of physical or mental origin. It is this class of cases that most frequently desire to escape or flee from the realities of life. We all have an inherent desire to flee from that which torments us and oftentimes we are unconsciously impelled by the intensity of our anguish to find relief in ways which are more or less pathological. When we once grasp the truth of the above statement, we will be appreciably nearer a practical solution of the various delinquencies, petty crimes and various acts of immorality which are largely traceable to the inborn or innate tendency to flee from the realities of life rather than face them heroically. I have frequently observed that incompatibility of temper between man and wife is often responsible for the tardy convalescence of my patients.

In the domain of the various neuroses, the modern medical psychologist has ample opportunity to work out definitely the fundamental causes of various habit diseases or rather the disposition of the apparently normal individual to go off at a tangent and oftentimes manifest the most bizarre and unexpected symptoms of mental disease. In searching for

the fundamental cause for the aberrant behaviour of the individual, we should take into consideration his life and the elements which are real or are regarded by the individual as being intolerable.

It does not require a long stretch of the imagination for us to recognize that the unpleasant life situation may result from a variety of causes. Perhaps it is due to domestic infelicity resulting from an unhappy marriage. Perhaps it is due to the inability of the individual to progress in a satisfactory way in his chosen profession. Perhaps it arises from the hardship and privation of poverty. Perhaps it has its origin in the boredom of the idle rich. In fact, it may originate from any one of the innumerable sources. Whatever the cause, the effect is a profound feeling of dissatisfaction and an instinctive longing for oblivion or possible flight from the intolerable situation which oppresses the individual, and in most cases the unfortunate individual can be reclaimed providing his life can be regulated and the intolerable surroundings changed.

We are all fully cognizant of the fact that the momentary oblivion from alcoholic stimulants is not in any sense a relief for the individual. In the evolution of our race, we have long since discovered that for the common good of the race, no less for the individual, the unpleasant things of life must be strongly met rather than camouflaged or fled from. The shirker or moral derelict rightly deserves our condemnation and we all realize that the slacker's life is incompatible with progress, whether in winning a battle or pursuing success in civil life. We all denounce the individual who is suffering from spineless inertia and regard him as one who is blocking the wheels of progress and a constant parasite on those who would succeed.

The unfortunate alcoholic addict is in many instances a product of enfeebled ancestry, though, as previously stated, he is in the large majority of cases the architect of his own fortune rather than a faulty offspring of a pathologic ancestry.

We have from almost time immemorial connected genius with dissipation. We are very prone to select the comparatively few immortal bards, whose writings have been handed down from generation to generation, as evidence of an inspired genius. We often lose sight of the fact that genius is only unlimited



capacity for work, and therefore, usually acquired rather than congenital, or as Osler says: "Two per cent inspiration and 98 per cent perspiration." Thus, he who is inspired by alcohol is to his fellows as was Lady Macbeth to the King's Guards:

"That which hath made them drunk hath made me bold;  
What that quench'd them hath given me fire."

We often marvel at genius and lose sight of the fact that ordinary genius might have been greater genius if the alcoholic stimulant had been avoided. All of us have divine potentialities, but few of us develop them. The genius instead of being an individual to whom something has been added without, is in reality one who, for some reason or other, has experienced a release of his power. In such an individual the forces that mask the hidden faculties of commonplace beings are abated or lost. Alcohol sometimes paralyzes these forces in the same manner that it loosens the chains of cavern dwellers that the immortal Plato conceived human beings to be. If we confine ourselves to the small groups of geniuses of peculiar constitution whose spiritual and artistic powers have been liberated at propitious times by alcohol, we are amazed at their productions. We conceive it to be our duty to register the evidence of genius without inflicting gratuitous moralizings or irrelevant clinical lectures or discussing the social pathology of alcoholism. Naturally, alcoholic inspiration produces very uneven results, as manifested by the indirect quickening of wit, humor, and imaginative fantasies, and creative impulses have been often capricious rather than sustained by facts. It has caused many a great writer to develop a style characterized by eroticism and an inequality which is rather grotesque than beautiful, owing to abrupt transitions from the deepest melancholy to obscene gaiety and a marked preference for such subjects as madness, drink and the gloomiest scenes of death. We must admit that Shakespeare's description of the effect of whiskey on the sexual powers applies in a sense to its effects on many intellects:

"With the cup the soul lights up,  
Inspirations flicker;  
Nectar lifts the soul on high  
With its heavenly ichor:  
To my lips a sounder taste  
Hath the tavern's liquor  
Than the wine the village clerk  
Waters for the vicar."

The veritable epidemic of alcoholism which occurred in the Elizabethan era was coincident with the great intellectual awakening of that age. Was it mere coincidence? May there not have been a cause and effect relationship?

Shakespeare tarried much at the Mermaid Tavern with other Elizabethan artists and poets. Shakespeare entertained his two old cronies, Michael Drayton, the poet, and Ben Jonson, the dramatist, at New Place, and, according to the statement of John Ward, it seems drank too hard, for Shakespeare died of fever contracted there.

It would seem to the casual student of literature that nearly all the great writers found it necessary or, at least, made use of a stimulant in order to inspire the amount of genius necessary to immortalize them. We could name *ad libitum* distinguished writers and poets and dramatists who have habitually or occasionally sought inspiration in their "cups," namely, Shakespeare, Goldsmith, Addison, Schiller, Goethe, Burns, our own Edgar Allen Poe, and others whose memories are too sacred to indict with offense of any description. We must not conclude, therefore, that genius and alcoholic excesses are inseparably connected, but on the other hand, that precociousness plus individual and assiduous toil is often mistaken for genius.

When we think of the productions of Omar Khayyam and his immortal Rubaiyat, we are convinced that alcoholic stimulant is not always productive of evil results; in other words, that the literature of the world has been greatly enriched by the genius inspired by alcoholic stimulation.

We are all familiar with the fact that whiskey stimulation sometimes dethrones the reason of the user, paralyzes his mental faculties and makes him satisfied with existing conditions. It would be manifestly unfair, however, for you to condemn so universal a stimulant without giving due consideration to its effect on different individuals. We grant that in many cases it devitalizes and stupefies, while in others it stimulates the latent or dormant faculties of the individual. I do not think it necessary for me to deliver a dissertation on the proven evil of excessive alcoholic stimulation, as we are all agreed that the sum total of its devastating effects are not counter-balanced by any good that may accrue.

It is well known that the effect of alcoholic stimulation with most people tends to make

them satisfied with their efforts and in this way deprives them of the incentive to excel or surpass their associates. We are cognizant of the fact, however, that a certain amount of sedation or freedom from the stress and strain of everyday life must be obtained in some direction. We are all convinced of the unwisdom of seeking it in our "cup," but many of us are constitutionally unable, if not by financial circumstances deprived of obtaining the necessary amount of rest and diversion by pursuing some popular hobby, such as golfing, fishing or other outdoor sports.

We vividly recall that Omar Khayyam's spontaneity and reckless abandon with his verses was inspired by resorting on many occasions to alcoholic stimulation. We remember that he was supremely happy when with—

"A book of verses underneath the bough,  
A jug of wine, a loaf of bread—and thou."

The writer is convinced that alcoholic stimulation with the majority of cases is more often one of *post* than *proctor hoc*.

Alcoholic patients may be divided into three classes, namely, the constant drinker, the periodical drinker, and the dipsomaniac, who is obsessed and dominated with the thought of whiskey at all times. The type of alcoholic patient does not change the treatment.

Unfortunately, we have no "specifics," or standardized inflexible rules for the cure of alcoholism, but every case should be regarded as a problem unto itself; therefore due consideration should be given to the personal equation, temperament, and idiosyncrasies of the patient. I usually withdraw the whiskey very tentatively, in order that the nervous system of the patient may not be unduly shocked on account of the sudden deprivation of the stimulant.

The treatment is both medicinal and psychological. The medicinal treatment consists of strong tonic courses of medicine, and the use of such remedies as are best calculated to obliterate the craving for alcoholic stimulation. I usually administer to my alcoholic patients a tonic consisting of gentian, nuxvomica, cinchona, avena-sativa, and capsicum. Free elimination produced by cathartic drugs is the golden thread that runs through the treatment.

I find, in some instances, that small doses of pilocarpine, administered hypodermically, tend to obliterate the craving, also apo-mor-

phine is of signal benefit for its hypnotic affect as well as for its action in destroying the insatiable and consuming craving which is present in so many cases. Free elimination by cathartics is reinforced by hydro-electro-therapeutics, consisting of prolonged hot water baths, electric light baths, etc.

The psychological part of the treatment of the average alcoholic is of the utmost importance. My observations lead me to conclude that an unstable nervous condition is the most prominent etiologic factor which must be reckoned with, therefore must be given due consideration.

With most alcoholic patients, there appears to be a fear complex which must be taken into consideration before the addiction can be fully understood and the treatment properly outlined. To anticipate relief by attempting only to obliterate the craving for alcoholics is usually doomed to failure, with the neuroses still persisting, as it is usually only a short time until the alcoholic spree recurs. I am often, therefore, nonplussed to tell whether a psychologic neurosis is a result or a cause of alcoholism, since most alcoholics are psychoneurotics, as manifested by the nervous instability, etc.

Because of the neurotic condition of these patients, it is usually advantageous to remove them from home surroundings to an institution where a satisfactory program can be followed, and every effort made to relieve the anxiety neuroses. Psycho-therapeutics is therefore a very essential part of the treatment.

I am of the opinion that the profession should take in a large minded spirit the question of psychic treatment for alcoholic patients. It is not usually necessary to refer the patient to a neurologist, provided the physician has the confidence of the patient and at least a working knowledge of psycho-therapy.

The neurotic alcoholic patient must be transformed, as nearly as possible to the phlegmatic type. In other words, he should be educated and reconditioned and his power of conscious purposive self-control in all circumstances be regarded as one of the finest of the fine arts as well as of the healing arts. The important question, therefore, is how to help those patients to achieve completely and permanently a mobile equilibrium. The late Sir William Osler entitled one of his most delightful essays "Equanimitas." It should be



read by all of us, as I regard it as one of Osler's most valuable contributions to therapeutics.

Nearly every one in the present day is living in the complex influences and exasperations of a crowded civilization, so that we are subjected to multitudinous stimulations which produce neurotics. We need to be more stoical and to be unperturbed by the stress and strain in which we are all living. In other words, we should endeavor to acquire the state of poise, tranquillity, or serenity, which is paramount to re-establishment of health. The high tension, overstress, strain and asthenia all tend to produce vulnerabilities which impair the balance between health and disease. We need to teach the technic of relaxation, rest, and thus obviate causes which so strongly tend to produce a rate of neurotics and alcoholics.

It has been my observation that the steady drinker is usually suffering from some real clinical entity or disease, particularly of the stomach, for which condition the patient finds relief, temporarily at least, by the local anesthetic effect of the whiskey.

It has been my observation that one drink of whiskey for the periodical alcoholic is equivalent to a drunk. The drunk may not follow immediately, but sooner or later a spree is the inevitable result. The explanation is the presence of so-called antibodies or phagocytes in the system which are created by the whiskey, and their explosion marks the time of the alcoholic spree of the individual, which is often of rather remarkable regularity. The accumulation of the so-called antibodies or toxins is comparable to the accumulation of malarial plasmodium, which explode in the form of a chill at certain intervals. Tolerance for whiskey or narcotic drugs is also established by the presence of these antibodies, as evidenced by the fact that a confirmed alcoholic can consume an inordinate amount of whiskey and be reasonably efficient in his business, whereas you or I who haven't any antibodies, in our system, would be obnoxiously drunk. I believe the antibody theory the most tenable explanation for the establishment of craving for drugs and alcoholics and for the periodical spree.

It is now believed by most alienists that every inebriate, aside from his inebriety, is mentally deficient. That it is our duty to be charitable to the unfortunate habit case rather than censure unduly without understanding

fully the life situation of the person. That every court before which juvenile and alcoholic criminals are summoned should have present a competent psychologist to pass upon the mental status of the prisoner. That the cure of the average alcoholic habitue implies not only the obliteration of the craving for alcoholic stimulation, but more often a complete change of environmental conditions surrounding the person. That genius and alcoholic excesses seem to be inseparably connected. That precociousness plus unremitting and assiduous toil is often mistaken for genius.

The victim of habit diseases must not only be rehabilitated but his life situation be made more tolerable.

### ENTERIC INTUSSUSCEPTION IN AN ANIMAL FOLLOWING ICE-WATER ADMINISTRATION.

By S. W. BRITTON, B. S., M. D., University, Va.  
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The testimony of many recent writers indicates that intussusception is probably the most frequent abdominal emergency in infants and younger children, and that its incidence has become much commoner in the past few years.<sup>1</sup> While the causative factors in a large number of cases are probably such structural conditions as diverticula, hypertrophied lymphoid tissues, polyps and tumors, it also appears that various functional abnormalities may in some instances be responsible. "Perverted peristalsis" and localized intestinal "spasticity" have, for example, been advanced as provocative causes.<sup>1</sup> That such disturbances of function often have as their immediate antecedent some particular dietary indiscretion would appear to be commonly the case, although proof of the matter has been difficult. Because of its particular bearing on the foregoing and also in view of the admonitory note which it suggests, the following case is quoted in brief from the writer's experimental records.

A considerable number of observations had been carried out on the response of animals and of man to cold, with no apparent pathological disturbance being produced in any case except that under consideration. Cracked ice was given usually by mouth, and cold water at approximately 0° C. was administered by stomach tube. Operative procedures were also sometimes carried out on the animals.

Cat No. 15 was a vigorous young male animal, slightly more than half-grown. It had

been operated on twice under ether anesthesia: cardiac and hepatic denervations had been carried out on November 24 and December 9, 1925, respectively, and good recoveries had been made. Following such operations it was observed that cats lived indefinitely under quiet laboratory conditions in apparently normal health. Denervation of the liver, it may be said, involved an incision of only a few centimeters through the upper mid-abdominal wall, and no manipulation of the intestinal coils.

The physiological responses of Cat 15, observed under a number of different circumstances, were typical of those obtained from a large number of other animals under similar experimental conditions.<sup>2</sup> On December 22nd the animal appeared in excellent condition, and a study of the adrenal responses to cold was begun. In this connection, 90 c.c. of ice-water (temp. 0.7° C.), representing a heat debt<sup>3</sup> of approximately 1500 calories, were given by stomach tube. Similar procedures had previously been carried out on numerous animals without noteworthy disturbance. No ill effects were noted on Cat 15 at this time; indeed, a typical increase in the rate of the denervated heart was elicited. A few days later, however, the animal became listless and refused the ordinary laboratory diet; fresh warm milk also was not accepted, and when given by stomach tube it was vomited shortly after being introduced. It was observed that no feces were being passed, and warm soap-water enemata were, therefore, given at intervals. These were practically ineffective, the returned ejecta containing only greenish millet-sized granules and no formed fecal matter.

On December 31st the animal had become very thin and weak; its pulse rate was 136 per minute, and it appeared feverish. The animal was found dead in its cage on January 5th.

Postmortem examination revealed an intussusception of the small intestine. The intussusceptum extended for approximately 17 centimeters within the intussusciens, the distal end of the former reaching to a point about 20 centimeters above the ileocecal valve. The greater portion of the intussusceptum was gangrenous, and the mucous membrane for a few centimeters at its tip was very friable and sloughing. No abnormalities were observed in any other organs.

It was very strongly suggested, therefore, that in the foregoing case of enteric intussus-

ception the introduction of a relatively small amount of ice-cold water into the stomach was the provocative factor. It is a well-established fact that water and other fluids may be ejected very rapidly from the stomach into the duodenum; and the likelihood of hyperperistalsis being induced, possibly to such an extent as to bring about severe derangement of normal function as in the previous case, in the event of cold fluids being administered to infants or very young individuals, is seriously to be considered. Some recent experimental observations in this Laboratory lend support to these contentions.

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### THE ETIOLOGY, PATHOLOGY AND DIAGNOSIS OF APPENDICITIS.

By G. H. REESE, M. D., Petersburg, Va.

The vermiform appendix is not peculiar to man, being found also in quite a number of the lower animals. To the human race, however, it constitutes, when diseased, a greater menace to health and life, through morbidity and mortality, than any other abdominal condition.

It is not pleasing to note that the mortality from this disease is higher today than it was twenty years ago; this in spite of the fact that the diagnosis of the acute form is usually easy, when care is exercised, and the treatment practically perfect when the appendix is unruptured.

The reason for so many ruptured appendices is probably two-fold. First, doctors may be slow to appreciate the significance of the onset of this disease, or, else, deem a little symptomatic treatment sufficient to get the patient by this particular attack. Often it does; again it fails, with fatal consequences.

Second, the patient frequently suspects appendicitis with the advent of abdominal pain and, fearing an operation, refuses to call a physician until driven to action by the pangs of peritonitis. Often, when calling a physician early, they refuse to take his advice for operation, until increasing pain finally convinces them of the fallacy of their own judgment. The deplorable results of this are seen in every hospital. There should be practically no deaths from appendicitis, yet read the records.



The causes of appendicitis may be divided into the predisposing and exciting.

The predisposing causes may be found principally in the nature of the appendix itself. It is a terminal organ. It is supplied by a single artery. It is situated at the most infective part of the bowel and has more difficulty emptying itself than any other segment of the digestive tract, often on account of its position. This may be retrocolic, or changed by kinks and adhesions, or by position changes of other organs. In adults, former attacks may have narrowed its lumen, or crippled its blood supply, while congenital defects may also have accomplished this or other forms of devitalization. In addition, fecoliths may block the lumen, making a normal filling and emptying of this organ an impossibility.

The immediate cause of appendicitis is, of course, some form of bacterial infection. Numerous investigations have shown that colon bacilli, streptococci, staphylococci, pneumococci, influenza bacilli, and many other organisms, including numerous anaerobes, may be the sole or predominating agent. No specific organism for appendicitis exists, nor can any deduction be drawn from bacteriological findings as to the course of this disease. Whether this infection is blood borne, or arises from the lumen of the appendix, is immaterial to the purpose of this paper.

All observers agree that the first lesion occurring in acute appendicitis is in the epithelium of the appendiceal crypts, and in its place we find a deposit of leucocytes and fibrin. This lesion may regress but if the inflammation progresses, these ulcers enlarge, the whole appendiceal wall becomes infiltrated with pus, and a true suppurative appendicitis is the result. Even this may subside, but it generally leaves a crippled appendix, inviting, through a narrowed lumen or impaired blood supply, a fresh attack.

The third stage is characterized by a progressive destruction of the appendiceal wall, either by perforation of the mucosal ulcers, or by rupture of the abscess formed by the closed appendix.

It is absolutely impossible correctly to understand the symptom complex of appendicitis without a working knowledge of its nerve supply.

All abdominal viscera derive their nerve supply from two main sources—the vagus and the sympathetic.

The vagus arises in the floor of the fourth ventricle, passes out of the skull through the jugular foramen, courses down the neck in the carotid sheath, goes through the thorax giving off branches to the cardiac and pulmonary plexi, pierces the diaphragm and spreads out over the stomach, omentum and probably other abdominal viscera, sending branches to the solar, renal, and splenic plexi.

The sympathetic consists of terminal branches supplying all of the abdominal viscera. These pass upward and are gathered into a congeries of filaments and ganglia known as the solar plexus. The great splanchnic nerves connect the solar plexus with the chains of sympathetic ganglia on each side of the spinal cord. These are connected with each other, and by both white and gray nerve fibers with the anterior primary divisions of the spinal nerves, having their centers in the cord.

The sympathetic does not carry impulses of pain as such. Its function is purely motor and secretory. When a sympathetic center gets an impulse, it sends out a message setting up secretion or peristalsis, according to the center stimulated.

When the organism is functioning normally, this takes place without awakening consciousness. When, however, these impulses are excessive either in degree or kind, a different situation arises.

In case of an inflamed appendix, for instance, these impulses travel up the nerves that accompany the superior mesenteric vessels to the solar plexus. Here they divide, a part taking the pneumogastric route to the brain, and the other part goes through the splanchnic route to the sympathetic centers in the cord. Being an unusual impulse, it is radiated to an adjacent sensory center, and is referred by the extrinsic nerves of the body to a point on the abdomen that may be more or less removed from the focus of irritation. The brain apprehends pain, but interprets it as coming from the extrinsic sensory nerves, and not from the appendix.

"As the solar plexus is a sort of pool for all abdominal impulses, it would not seem strange if these messages occasionally experienced errors in transmission." This is exactly what is thought to take place in the beginning of the average case of appendicitis. An impulse from the inflamed appendix goes to the solar plexus. The stomach is accustomed to receiving most of these impulses. By habit it

would seem, these impulses take the gastric route through the plexus to the cord, and, when referred, they are referred as coming from the stomach center. This is why the primary pain of appendicitis always centers in the epigastrium or around the umbilicus. When, however, the inflammation becomes more severe and these impulses become more insistent, they right themselves and seem to force their way through their proper channel. When this occurs, the pain leaves the center of the abdomen and is shifted to the lower right quadrant. This is then known as the secondary pain of appendicitis. With this sketch of principles in mind, we may now take up the diagnosis of appendicitis.

A division of appendicitis into the acute and chronic forms answers all practical purposes. This paper would be incomplete without some record of what is thought and known concerning the chronic form of appendicitis. As a disease entity this has assumed an important position especially in French literature.

Many clinicians deny that a clinical diagnosis of chronic appendicitis can be made, and cite other conditions, giving similar symptoms, in support of their contention. Be this as it may, all other tissues and organs of the body are subject to acute and chronic inflammations—ofttimes giving distinctive symptoms of each condition—and the question confronting us here is, does a chronic appendix present evidence sufficiently clear to enable one to make a diagnosis of this disease? Perhaps it does; perhaps it does not. The battle over this question still rages; yet it is known that chronic inflammation of the appendix exists. This is shown in pressure necrosis of the mucosa in cases of fecoliths. This much at least is chronic, whether or not it presents any definite symptomatology.

Also there are cases of appendiceal obliterations, adhesions to surrounding organs, and changes in the blood vessels of the appendix that have never been, as far as known, preceded by an acute attack.

In the young these changes are thought to be due to acute attacks; in older persons, to a low grade infection or to toxins, producing first, sclerosis of the submucous and mesenteric arteries of the appendix, and, later, sclerosis of the entire organ.

This latter would be a true chronic condition, while the former is only the end-result in both cases, but the processes are entirely

of acute attacks. The final result is the same different, just as we see in the pathology of other organs, notably that of the kidney.

Whether anatomical findings or clinical speculations justify this differentiation may be debated, but therapeutic results seem to mark clearly this distinction. In cases of gross anatomical lesions, operative results are good in 94 per cent of the cases, while cures are effected in only 60 per cent of those showing only minor sclerotic changes.

The symptoms said to accompany chronic appendicitis have been described as vague abdominal pain, pain on deep pressure over the appendiceal area, malaise, bilious attacks, slight icterus, hematemesis, dyspepsia, constipation, hyper- and hypo-chlorhydria. Renal, vesicle, and pulmonary disturbances, the latter masked as asthma or tuberculosis, have been cured by appendectomy. The similarity in symptomatology of gastric and duodenal ulcer, cholecystitis, and chronic appendicitis is notorious. The best of surgeons have operated for ulcer or cholecystitis, and completely cured the patient's symptoms by removing only a diseased appendix.

With the acute form of appendicitis, however, the symptoms and signs are more definite. Its recognition depends upon four cardinal points, occurring in a definite sequence:

I. Primary pain, located in the epigastrium or around the umbilicus, later shifting to the lower right quadrant.

II. Nausea.

III. Temperature.

IV. Rigidity.

This sequence must be maintained. If nausea, fever, or rigidity precede the pain, the condition most probably is not appendicitis.

The primary pain of appendicitis is due to the early increased peristalsis which accompanies this disease.

When the stomach is irritated it strives to empty itself by increased activity; the pylorus is closed, peristalsis is set up, and nausea and vomiting take place.

These early impulses from the appendix, which may cause pylorospasm, also close the ileocecal valve, and block the contents of the small intestine that are hurled against it by this early increased peristalsis. Unable to pass, stagnation, decomposition, and later in the disease gaseous distention result.

The colon also receives this urge to activity and frequently empties itself; but after the



lower bowel is once empty, constipation is complete.

This early pain is sharp and colicky in character, and, with the early bowel movement, may easily be mistaken for an ordinary stomach ache, or food poisoning and its true significance be hidden until it settles, as a more or less constant ache, in the lower right quadrant.

This settling of pain in the lower right quadrant is said to be constant, even in those cases of transposition of viscera where the appendix is on the left side.

There are many cases that apparently mark an exception to this rule; but in reality they do not. In cases of appendiceal abscess, where the parietal peritoneum is involved, the appendix is directly under the sensitive part. When the inflamed appendix touches the bladder, vesicle symptoms may predominate; if it touches the gall-bladder, symptoms of cholecystitis may present. When it rests on the genito-crural nerve, a perfect picture of renal colic may be in evidence. This is because the parietal peritoneum is irritated, and, being richly supplied by sensory nerves, the pain is direct and not referred.

The nausea of appendicitis takes place early in the attack, and is quite different in cause and character from that seen later, when peritonitis develops. It is evanescent and often quickly passes.

Temperature is always present at some time during an attack of appendicitis. It is a variable factor, however, and no reliance should be placed either upon its presence or absence. It may be absent or subnormal in gangrene or perforation, as well as in a case that is subsiding. It is generally high in cases of marked suppuration, the pulse being elevated in proportion; but no reliance can be placed on either as an indicator of the state of the inflammation.

The rigidity of appendicitis is purely a visceromotor reflex, as described above, while the tenderness over the appendiceal area is a viscerosensory reflex. Both are due to a stimulation of motor and sensory centers in the cord by unusual impulses coming from the appendix.

These are the four cardinal points of diagnosis of appendicitis when occurring in sequence. To them may be added leucocytosis, which, however, is totally unreliable; chills,

flexion of the right thigh, pinched expression of features, costal breathing, hyperesthesia of skin over the appendiceal area, and the general appearance of severe illness that has, on short notice, possessed the patient.

The differential diagnosis of appendicitis embraces almost every disease that can occur within the abdomen, as well as many that occur without. Typhoid fever in its early stages, acute indigestion, gastric or duodenal ulcer, intestinal obstruction of various kinds, mesenteric thrombosis, perforating ulcers of the cecum and ascending colon, carcinoma of colon, tuberculous peritonitis, spermatic cord lesion, seminal vesiculitis, cholecystitis, hepatic, subphrenic, renal and peri-renal abscesses, pancreatitis, renal colic, hernias, tubal and ovarian disease, diverticulitis, plumbism, pleurisy and pneumonia, herpes zoster, and hysteria present a few of the troubles that plague alike the patient and the diagnostician. Most of these are easy to eliminate by a careful history and examination. Some of them cannot be eliminated, but, as they indicate acute abdominal conditions of a surgical nature, too much time should not be lost in vain attempts at differentiation.

Osler is authority for the statement that at no time in its course is appendicitis a medical disease. With this medical opinion all surgeons agree. There is no safe treatment for appendicitis except the early operative. Any other therapy is likely to prove mistreatment, or else the treatment of a peritonitis. The mortality following mere appendectomy is nothing. The mortality following appendiceal rupture is from 5 per cent up, depending almost entirely upon the type of operation and subsequent care of patient. The difference in these two conditions is worth striving for. An inflamed appendix, perforating ulcer, or strangulated gut cannot afford to wait for diagnostic certainty. A proper incision will relieve any condition found.

As mistakes of judgment and diagnosis are bound to occur, the logical procedure would seem to be to chance the removal of a few appendices unnecessarily, rather than, by an unwise delay, permit even one appendix to rupture.

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## THE PARANASAL SINUSES IN PEDIATRICS.\*

By JOHN F. WOODWARD, JR., B. S., M. D., Norfolk, Va.

In opening this discussion, it would seem expedient to review, as briefly as possible, the development of the paranasal sinuses. In doing so I am taking my anatomical data mostly from Schaeffer.

The maxillary sinuses (antra of Highmore) are primitively a pouching or evagination of the mucous membrane of the nasal fossae and are evident about the seventieth day of fetal life. At birth they are the most definitely formed sinuses and measure approximately 14x6x5 mm. It is not until the eighth year that they begin to bear an intimate relation with the inferior meatus, and are supposed to reach adult type about the twelfth year.

The first evidence of the frontal sinuses can be demonstrated as early as the fourth fetal month. Embryologically speaking, in many instances they are anterior ethmoidal cells which have grown sufficiently far into the frontal region to be topographically frontal sinuses. At six-twelve months they measure approximately 3.5x1.5x2.0 mm. Oppenheimer says they are not usually developed before the fifth to the seventh years and reach full development at about the eighteenth year.

The ethmoidal cells, anterior and posterior groups, are in evidence as early as the fourth month of fetal life. By the end of the seventh month they have taken shape in the form of hollow tubular-like blindly ending sacs with ostia in communication, and may now be truly called ethmoidal cells. At one year of age they measure, anterior group, approximately 2x2x2 mm., and posterior group 5x5x4 mm. Inflammatory conditions of the antra and ethmoids are more frequent than those of the frontal and sphenoidal sinuses which develop later.

The sphenoidal sinuses arise in relation with the posterior cupola or dome of the cartilaginous nasal capsule and are genetically demonstrable as early as the fourth fetal month. It is only after a process of resorption and fusion, which is usually completed by the fourth year of infancy, that the sphenoidal sinuses begin to excavate the body of the sphenoid bone. They measure approximately 1.5x2.5x2.5 mm. at the first year, and are said to be well developed by the seventh year.

Through infancy and early childhood the

paranasal sinuses continue to develop and may not be entirely developed until about the age of puberty. However, in considering the above, we must remember the remarkable anatomical variances of the sinuses in different individuals. I will not go into the relationship of the sinuses with their neighboring structures, nor a discussion of the cellulae conchales or the various ostia in communication, but only emphasize their importance in understanding the clinical manifestations of disease of the sinuses.

The functions of the paranasal sinuses are more or less obscure. Briefly, they are referred to as: (1) Primarily olfactory in function; (2) Playing a role as pneumatic cavities and adjuncts to respiration in aiding the warming and humidification of the inspired air; (3) Some support the view that pneumatization of the bones produces the proper equipoise of the head; (4) Again, they may be aids in proper vocalization. The pro and con of these various views are numerous, and I review them merely to bring them to your attention.

In considering the pathogenesis of diseases of the paranasal sinuses the infectious diseases play the chief role—such as influenza, croupous pneumonia, facial erysipelas, scarlet fever, measles, diphtheria, smallpox and cerebrospinal meningitis. According to Weichselbaum, influenza most frequently causes inflammation of the accessory sinuses. Again, scarlet fever has frequent and serious import, often breaking through the bony walls and extending to neighboring tissues. In diphtheria, involvement is rare, though a case has been reported in which at post-mortem a pure diphtheria membrane was found on the mucous membrane of the maxillary sinus. Prada even reports inflammation of the accessory sinuses of gonorrheal origin. To us influenza and scarlet fever seem the causative factors bearing the greatest import.

Also, secondary inflammation due to trauma and extension of the primary disease processes of the bone to the mucous membrane, as seen in abscesses of alveolar processes and syphilitic and tubercular lesions beginning in the nasal skeleton, must be considered.

It has been said that a tendency towards sinus disease is often the fruit of the family tree. "The frequency with which the children of parents suffering from sinus disease contract the disease early in life is a well known fact, and irrespective of environment, diet or

\*Read before Pediatric Staff, Cincinnati General Hospital, February, 1929.



possible contagion, it seems that an inherited weakness towards the condition is a most important factor."

Daniels places a good deal of emphasis on faulty nutrition as a causative factor in infections of the upper respiratory tract.

The relation of sinusitis to systemic diseases in children under eleven years of age has been brought out by Cone. He reports several interesting cases of arthritis, cholera infantum, bronchiectasis, and frequent pneumonia, nephritis, pyelitis, malnutrition, celiac disease, chorea and chronic ulcerative colitis in which treatment of the accessory sinuses involved has improved and in several instances brought about definite cures.

Dean brings out the following conditions in infants and young children which may result from a focus of infection: Cardiac lesions, rheumatic fever, chorea, nephritis, pyelitis, certain cases of cyclic vomiting, deforming peri-arthritis, anemia, anorexia, malnutrition and chronic digestive disturbances.

Pesetka states that "if we hope to prevent chorea we must eradicate the foci of infection that initiate the rheumatic syndrome, that is, infected tonsils, adenoids, teeth, sinuses and ears." However, the relation of these to chorea has been disputed by many.

In malnutrition of infants, we must bear in mind "the excessive reaction to infection of the upper respiratory tract (nasal and aural passages) of the artificially fed baby and the low incidence of such infections among breast fed babies, suggests that in the former cases, as seen in experiments on rats, we are dealing with an infection superimposed on tissues, which have been altered by a dietary deficiency." Here vitamin A seems to play an important role.

Disease of the paranasal sinuses in infancy and early childhood is not very commonly seen. Onodi could find in medical literature only fifty-three instances of the disease of any of the sinuses developing before the age of ten. Strachan records a series of eighty cases of chronic sinusitis between five and thirteen years of age. One case has been reported of maxillary sinusitis in an infant one month old and six others collected in infants from three days to five weeks of age. However, radical operations have been performed on the ethmoid cells in children as young as thirty months and more frequently as age advances. Meyer operated upon the ethmoidal labyrinth

by way of the maxillary sinus in a child between three and four years of age.

It would seem then that sinusitis in the infant and child is something of a rarity, possibly explainable in the imperfect development of the paranasal sinuses during this period. Again, I may venture to say that a good number of cases with sinus involvement in infants are overlooked due to the difficulty of nasal examination of the child at this age.

I bring to your attention several brief reports of cases taken from literature.

Case I.—Boy ten years of age. Has had cough for past six years. Gives history of measles and influenza at four years of age. Since then has not been well. Examination revealed a bronchiectatic condition and chronic suppuration of maxillary antra. Antra cleaned up and condition improving with good prognosis.

Case II.—Boy eleven years of age with persistent nasal discharges for past eight months. General examination revealed pulse 81, obesity, general sluggishness, subnormal temperature. A diagnosis of hypothyroidism was made and patient given thyroid extract. All nasal symptoms cleared up and general condition improved.

Case III.—Boy five years of age. Admitted in semi-conscious condition with rigid neck, palpable cervical glands. Little pus was found exuding from ethmoidal and sphenoidal sinuses. Further examination and tests led to diagnosis of meningitis. At autopsy the following findings were noted:

1. Purulent sphenoiditis.
2. Epidural abscess.
3. Cavernous sinus thrombosis.

A review of 213 cases taken from the classification of primary bone disease, tuberculosis excepted, of which approximately 90 per cent consisted of sinus involvements at the Cincinnati General Hospital for the year 1928, reveals only twenty-two cases of sinusitis falling in the pediatric age. Of course, this does not include cases treated in the dispensary or on other services as complications. Of this number, only three cases were recorded below the age of six, the remaining cases coming between the sixth and fifteenth years, inclusive. Seven of these were treated under the Department of Pediatrics and fifteen under the Department of Otolaryngology. An important point noted is the fact that only one case of ethmoidal sinusitis was found and that in

a girl fifteen years of age, the treatment being entirely conservative. The remaining cases, twenty-one out of twenty-two, dealt with either unilateral or bilateral involvement of the maxillary sinus, one being diagnosed as a pansinusitis.

It is difficult to ascertain the etiological factor. One case was followed by measles, two were associated with malnutrition, one with lobar pneumonia, several with otitis media and only one with mastoiditis. The common cold seemed to play the important role. In a few of the cases tonsillectomy and adenoidectomy were done, but conservative treatment and antra washings seemed to bear the brunt of the therapy. One case, four years of age, of unilateral maxillary involvement on X-ray showed polypoid changes, and a radical operation, Caldwell-Luc, was performed, polypoid degeneration of the mucous membrane being found.

On the wards of the Contagious Department, rhinitis is commonly seen, especially in scarlet fever. Purulent rhinitis seen in septic scarlet fever is usually quite persistent, being present in 80 per cent of Ker's cases.

A review of 468 cases of infectious diseases at the Cincinnati General Hospital during the year 1928, with an age limit between two months and fifteen years, inclusive, of which number 182 were scarlet fever, 108 diphtheria (one nasal,) 107 pertussis and seventy-one measles, reveals the fact that only two cases out of this number had acute sinusitis listed as a complication. The first case, a boy six years of age, developed measles and had a positive culture for diphtheria during the fourth week of scarlet fever. The right side of the face was edematous, extending to the orbit. The maxillary antrum on that side was found filled with thick purulent material. Patient was treated with convalescent serum and the antrum with nasal irrigations, argyrol and ephedrin. Drainage was sufficient under conservative treatment and patient rapidly improved.

Several cases throughout this review had a muco-purulent nasal discharge. Otitis media, mastoiditis, bronchitis and pneumonia were frequent complications. Little attention seemed to be paid to the muco-purulent discharge which eventually cleared up under conservative nasal therapy. We cannot definitely deny that the sinuses were involved, as it is stated that a purulent nasal discharge is usu-

ally sinusoidal in origin, but it is quite evident that any involvement of the sinuses was overlooked. I attributed this to three causes: (1) The difficulty of nasal examination in the infant and young child; (2) The control of the condition by conservative nasal therapy, and (3) The fact that more emphasis was placed upon the other apparently more serious complications.

In conclusion, it would seem within the scope of pediatrics to pay more attention to the possible involvement of the paranasal sinuses in such cases as malnutrition, nephrosis, bronchiectasis, persistent rhinorrhea and obscure cases where foci of infection may play an important part.

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528 Redgate Avenue.

Forgetting is the only way.  
Forget the storms of yesterday.  
Forget the trials you have had.  
Forget the weather if it's bad,  
Forget you're not a millionaire;  
Forget the gray streak in your hair,  
Forget you ever had the blues,  
But don't forget to pay your dues.

—Exchange.



## THE SURGICAL CONSIDERATION OF THE DYSPEPSIAS CAUSED BY GASTRIC AND DUODENAL ULCERS.\*

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Gastric and duodenal ulcer cause a form of chronic dyspepsia which is most distressing to the patient and which in many instances is a difficult problem for the physician who undertakes the treatment. The patient is concerned with obtaining relief from suffering that has continued for a long time, and, perhaps, even more vitally concerned with preventing the recurrence of periods of complete prostration, with their consequent loss of time. The physician's concern is to relieve the patient of his symptoms and to prevent his having recurrences. The economic question which so critically affects the patient must be considered by his physician, as it sometimes determines which is the best form of treatment for a particular individual. A careful clinical study should be made in each case before the examining physician decides upon the most suitable method of treatment. Until the etiological factors are all known, it is doubtful if our methods of treatment will vary much from those which are in vogue today, namely, dietary treatment and alkalization of the stomach, with the patient either in bed or ambulatory, and surgery.

### ETIOLOGY

Of the many etiological factors which may be involved in the causation of gastric and duodenal ulcer, perhaps the best established is the streptococcic factor. Rosenow<sup>1</sup> has produced ulcers in laboratory animals with streptococci grown from pathological tissues and from pus procured from the foci of infection in patients suffering from these diseases. He<sup>2</sup> also found streptococci in ulcers that Mann and Williamson<sup>3</sup> had produced experimentally in dogs by changing the alkaline chyme of the duodenum to acid. These streptococci, grown in pure culture, were injected into seventy-nine laboratory animals. Seventy-two (91 per cent) of them developed lesions of the stomach and duodenum. This unusually high percentage of reproduction of lesions is strong proof of the streptococcic factor in gastric and duodenal ulcer. However, from the experiments of

Mann and Williamson<sup>3</sup>, it may be assumed that other factors may also play a part. Morton<sup>4</sup> has recently called attention to chemical and mechanical factors in the causation of chronic peptic ulcers which he produced experimentally. Embolism and thrombosis producing blood stasis in circumscribed areas of mucous membrane, permitting of erosion by gastric juice, to which attention was directed by Osler<sup>5</sup>, in 1887, are probably primary causes of ulceration in which streptococci may produce a chronic lesion.

*Age, Sex, and Incidence.*—Duodenal ulcer is found most often during the third decade; gastric ulcer during the fourth and fifth decades. C. H. Mayo<sup>6</sup> states that gastric and duodenal ulcer are more common in males than in females by the ratio of 3:1. Moynihan<sup>7</sup> states that gastric ulcer is found twice as often in men as in women. C. H. Mayo<sup>6</sup> gives the proportion of gastric to duodenal ulcer as 1:4; Moynihan<sup>7</sup>, as 1:5.

### GASTRIC ULCER

Chronic gastric ulcer occurs most frequently as a single lesion along the lesser curvature of the stomach, and is most often found between the incisura angularis and the pylorus. Occasionally there may be multiple ulcers. The patient seeking treatment for gastric ulcer usually gives a history of spells of "stomach trouble" over a long period of time, the spells lasting from a few weeks to a few months, and increasing in duration as the disease progresses. Periodicity in the occurrence of the spells is not the rule, although occasionally the spells are seasonal, coming in the spring and fall. Between spells there is relative freedom from pain and other symptoms; the patient, however, is not as free from pain during these remissions as he is in the case of duodenal ulcer. With the lengthening of the spells the periods of remission tend to grow shorter. Pain coming from one to two hours after meals is the chief symptom. The pain persists for an hour or two, usually subsiding before the next meal. Thus, according to Moynihan<sup>8</sup>, a spell may be said to carry through a cyclic program of food, relief, pain, comfort; food, relief, etc. Light eating of bland food usually does not cause as much pain as a heavy meal of coarse food. The character of the pain may be described by the patient as "boring," "burning," "aching," or "gnawing." The location

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is usually high in the epigastrium and occasionally to the left of the midline. Marked weakness and lassitude may be noted during the time of pain. Sour eructations are common among patients, nausea is frequent, and vomiting occasional. When vomiting does occur it may be frequent. Vomiting of blood and blood in the stool occur in 25 per cent of the cases; the loss of blood in these cases may be great enough to produce an acute anemia and even death.

A gradual loss of weight from the beginning of the trouble is characteristic, although an occasional patient may gain weight, especially when he has formed the habit of relieving the epigastric distress by taking food. With obstruction and vomiting there is usually emaciation and dehydration. Tenderness high in the epigastrium is frequently found, but no positive signs of gastric ulcer are revealed on physical examination.

To aid in making a diagnosis, after a careful history has been taken, a chemical examination of the stomach contents and an X-ray study should be made. In gastric ulcer the acid values are usually found to be high after a test meal, though they may be low and so suggest the possibility of a malignant change. An X-ray study is of the greatest aid in diagnosing gastric ulcers. X-ray diagnosis of this condition was confirmed at operation in eighty-four (95.45 per cent) out of eighty-eight cases at the Mayo Clinic from July 1, 1918, to January 1, 1919, Carman<sup>9</sup> states in a study of the accuracy of X-ray diagnosis and localization. While such accuracy emphasizes the value of X-ray study in diagnosis, it also points out the necessity for skilled operators and for deduction by an expert radiologist.

#### DUODENAL ULCER

Sir William Osler<sup>5</sup>, in 1887, reporting a series of eight cases of duodenal ulcer, stated: "The solitary ulcer occurs more frequently in the duodenum than in any other portion of the intestine, and in its etiology and morbid anatomy is almost identical with the gastric ulcer. It is rarely met with below the bile papilla, at which point the acid chyme is neutralized."

Spells of "stomach trouble" coming with considerable regularity, usually in the spring and fall, and extending over a few weeks or

a few months with periods of remission, is the complaint of patients with duodenal ulcer. During these spells, which grow more habitual and more persistent as the disease progresses, the patient has pain which recurs from one to four hours after meals and which persists until the patient takes food or alkalis, or even vomits. Stomach washing occasionally gives relief and patients sometimes learn to do this for themselves. The time of recurrence of the pain, which the patient describes as "aching" or "gnawing," is constant in relation to meals, and there is established a cyclic program of food, relief, pain; food, relief, etc. Frequently pain comes on at a regular hour in the night; relief is gained by the patient's taking crackers and milk, or soda, and these are often kept at the bedside. The pain is in the epigastrium a little to the right of the midline. A sensation of fullness in the epigastrium, accompanied by sour eructations, occurs in some cases. Nausea and vomiting are fairly frequent, while, according to Balfour<sup>10</sup>, vomiting of blood and blood in the stool occurs in 18 per cent of the cases. The hemorrhage is rarely fatal but is often serious, and for a few days following the bleeding the patient appears to be toxic. From the time of the onset of symptoms the average patient gradually loses weight and is unable to regain it. Occasionally, however, a patient who is under a satisfactory dietary treatment may retain his normal, or even gain, weight.

The diagnosis of duodenal ulcer is dependent upon a full history aided by X-ray and chemical laboratory studies. With the exception of tenderness in the epigastrium, which may be found in some cases, we have no distinguishing signs which are revealed on making a physical examination. The X-ray is of the utmost value in the diagnosis of this condition. Carman<sup>9</sup> demonstrated the high percentage of 96.47 of roentgenological diagnoses of duodenal ulcer confirmed at operation. Hyperacidity of the gastric contents following the taking of a test meal is usually found in cases of duodenal ulcer but this finding is not sufficiently constant to be depended upon in any single case.

#### TREATMENT.

With the many variations in the symptoms and conditions found in patients having gastric or duodenal ulcer, no single form of treatment



is applicable to all. In cases of short duration and mild symptoms, dietary treatment and alkalization of the stomach contents should be tried. The treatment is unquestionably best carried out with the patient in bed in a hospital during a period of from three to six weeks. Following this period of hospitalization, the dietary treatment and alkalization of the stomach contents must be continued under the direction of a physician for a long period of time. When, for economic or other reasons, the patient cannot be hospitalized, an ambulatory form of treatment should be carried out. Alvarez<sup>11</sup> has developed an ambulatory treatment for patients who cannot give up their occupations. Under his method of treating these cases the worker must have his food prepared at home and must carry enough to supply him with the feedings needed during the day. Lack of intelligent cooperation, adverse conditions which may govern a patient during his working day, or the necessity of continuing heavy manual labor, often make dietary treatment impracticable. In cases having a long history and symptoms of a severe nature which have not responded to dietary treatment, surgery should be employed. It should be added that surgical treatment should not be delayed in cases of gastric ulcer because of the great danger of malignancy.

Pyloric obstruction and hemorrhage from a gastric or duodenal ulcer require careful preparation before surgical treatment should be undertaken. Hypertension, hypotension, respiratory, heart, and kidney diseases should be treated in addition to the treatment of the ulcer, regardless of the method of treatment employed and always before surgical treatment is begun. Foci of infection should always receive attention, but, if the patient is being prepared for surgical treatment, the foci should not be disturbed as one of the "focal reactions" may be produced. These foci of infection are best treated during the period of convalescence.

*Surgery:*—When the abdomen is opened for the surgical treatment of an ulcer of the stomach or duodenum, an incision large enough for a thorough exploration should be made. A right paramedian incision is the one used to best advantage.

To determine the presence and location of a gastric ulcer, an examination should be made by: (1) inspecting and palpating the lesser

curvative of the stomach from the cardia to pylorus, (2) inserting a finger through the gastro-hepatic omentum to palpate the posterior wall of the stomach, (3) inspecting and palpating the greater curvature of the stomach from the cardia to the pylorus, and (4) inspecting and palpating the pylorus.

The frequent finding of malignant change in gastric ulcer, as described by MacCarty,<sup>12</sup> and the numerous instances in which malignancy has occurred after a gastroenterostomy alone had been done for the surgical relief of a gastric ulcer, has given rise to the present, almost generally accepted, opinion that the ulcer itself should be treated surgically. The gastric ulcer may be excised by a cautery (Balfour),<sup>13</sup> by a circular excision with a knife, or by resecting a wedge-shaped segment containing the ulcer. Gastroenterostomy should follow any form of ulcer excision. If the gastric ulcer is large, a circular, "sleeve," resection or subtotal gastrectomy (Bilroth, Polya) may be done. Gastric ulcer producing hour-glass contraction is treated by resection of the stomach or gastropasty.

The presence and location of a duodenal ulcer can be determined by the surgeon by: (1) inspecting and palpating the anterior wall of the duodenum, (2) inspecting and palpating the posterior wall of the duodenum through an opening in the gastrohepatic omentum, and, if an ulcer is not found, (3) opening the duodenum to inspect the mucosa as far as the bile papilla.

A duodenal ulcer is usually found within an inch of the pylorus; occasionally one will be found lower. The duodenal ulcer, like the gastric ulcer, should be treated surgically, not so much on account of possible malignant change as because hemorrhage may occur at some later time. The ulcer of the duodenum may be treated by: (1) infolding, by placing a purse-string suture around it, (2) destroying, by cauterizing and suturing the cauterized surface, or transduodenal cauterization of the base, when the duodenal ulcer is not easily accessible for excision, and (3) excision with a knife (Heinicke-Mikuliez). A gastroenterostomy should also be made when any form of excision is done.

The pyloroplasty of Finney<sup>14-15</sup> and of Judd<sup>16</sup> have given satisfactory results in certain varieties of duodenal ulcer. They are especially applicable when the ulcer is on the

anterior wall of the duodenum and when there is little inflammatory reaction or induration of the tissues in the region of the pylorus. The pyloroplasty of Judd<sup>16</sup> is perhaps as simple and efficacious as any form of surgical treatment for duodenal ulcer when the ulcer is single, on the anterior surface, and without much inflammation or induration surrounding it. By Judd's method the ulcer is excised and the anterior half of the pylorus is removed. When the stomach and the duodenum are sutured together, we have a patulous opening which will allow the stomach to empty easily and one which will allow an influx of duodenal contents with the consequent lowering of the gastric acidity.

Surgery in cases of duodenal or gastric ulcer relieves the patient of symptoms in a high percentage of cases; it eliminates the possibility of an acute perforation, and removes an abdominal focus of infection, while early excision of a gastric ulcer may prevent the occurrence of malignancy. Recurrence in cases of duodenal ulcer are, according to Balfour,<sup>17</sup> 9.3 per cent; in cases of gastric ulcer they are slightly higher. Balfour, by adequate preparation, by good operative technique, and by careful post-operative treatment of patients with gastric or duodenal ulcer, has greatly reduced the mortality. He has succeeded in keeping the mortality as low as 1.7 per cent, or one death, in a series of 58 cases of gastric ulcer, and 0.6 per cent, or one death, in a series of 161 cases of duodenal ulcer. This splendid achievement cannot be duplicated in every series, but the utmost precautions should be taken to keep the mortality low.

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## UNDULANT FEVER DUE TO INFECTION WITH BRUCELLA ABORTUS.

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Undulant fever due to infection with brucella (*alcaligenes*) abortus is far more common than is generally supposed. Dr. C. C. Young,<sup>1</sup> of the Michigan State Laboratories, reports that out of one hundred and eleven samples of blood sent in for the Widal test and found negative, eleven were positive for brucella abortus by agglutination in titers of 1:40, or more. Hull and Black,<sup>2</sup> of the Illinois Department of Health, report that in a similar series of sixty-nine samples, five were positive in titers of 1:200.

Edwards and Coffman,<sup>3</sup> of the Department of Animal Industry, estimated that one cow in every twelve was infected with brucella abortus. This means that practically every person in the United States is, at some time or another, exposed to the disease, as it has been shown conclusively that milk can carry the organism.<sup>7-8</sup> At Earlham College,<sup>4</sup> in Indiana, thirteen cases occurred. The college herd of twenty-two cows had seven cases of abortion. In South Bend, Ind.,<sup>4</sup> there were fourteen cases of undulant fever. The dairy cattle supplying milk to that city were found



to be 40 per cent infected. In the face of these reports one wonders why infection is not more commonly seen. Probably a constitutional factor<sup>5</sup> prevents more wide-spread prevalence of the disease. Possibly many cases are not being diagnosed.

The organism responsible for undulant fever in man and contagious abortion in cattle<sup>6</sup> is gram negative and non-motile. It is rod-shaped but sometimes appears in coccoid form. The cells of a two-day culture grown on a surface of plain agar and stained with carbol fuchsin appear .5 micron wide and from .5 to two microns long. No endospores are formed. It is aerobic or prefers a slightly reduced partial pressure of oxygen. Gelatine is not liquified, and neither gas nor acid is formed from carbohydrates. It is parasitic, invading animal tissues.<sup>9-10</sup>

In the literature one finds the organism referred to as a "micrococcus," a "bacillus," a "bacterium," or as a "brucella." The term "micrococcus" was given by Bruce in 1887. Bruce, who was the first to describe the cause of Malta, or undulant fever, did his work in the Island of Malta. It seems as though the strains found on the Island of Malta are predominantly coccoid in form, whereas those found elsewhere are more rod-shaped. Durham, in 1898, was the first to describe the rod forms. He thought temperature and medium caused the forms to change. The Society of American Bacteriologists<sup>6</sup> in 1917 decided that the term "bacillus" should not apply promiscuously to all rod forms, but solely to aerobic spore-bearing forms. The non-spore-bearing rod was classified as "bacterium." Thus the terms "bacillus" and "micrococcus," as applied to the abortus organism, were replaced by the term "bacterium." But following observations by Alice Evans<sup>6</sup> that the cause of undulant fever or contagious abortion was related morphologically, culturally, and biochemically to the so-called "bacillus bronchi-septicus," the alleged cause of distemper in dogs, the Society of American Bacteriologists suggested that a new genus be created for the group. Shaw and Meyer proposed the name "brucella," and it has met with general adoption here and abroad.

Castellani and Chalmers,<sup>6</sup> working independently, created the name "alcaligenes" to apply to the melitensis-abortus group.

In cases of infection there is formed in the blood specific agglutins. It is the presence of

these agglutins that enables one to confirm a diagnosis. However, the various strains of the brucella group, caprine, bovine, human, equine, porcine, cannot be distinguished from one another except by absorption agglutination and by the Huddleston dye method. There is also cross-agglutination in 20 to 30 per cent of the cases with the tularensis organism, but this is with a lower titer, and can thus be ruled out.

From the clinical viewpoint, twenty cases taken from the literature or seen at the Pinecrest Sanatorium (where they were referred as tubercular suspects) have been analyzed. These cases are reported from widely separated states, showing that infection may be found all over the United States. People in the third or fourth decade of life seem more susceptible than others. Men are attacked seven times as frequently as women. Those engaged in farming or laboratory work seem most liable to contract the disease.

In all but one case the onset was insidious. One-half the cases were reported as having headache. A dull ache in the frontal and occipital regions is fairly characteristic. One-fourth of the cases exhibit anorexia, and another one-fourth malaise. Constipation was reported in only three cases, diarrhea in none, and gastric disturbances in one. While no mention of loss of weight was made in eight cases, twelve were reported as having lost from seventeen to forty pounds.

There was cough in six of the cases. One patient raised much purulent sputum, though only three were reported to have had sputum. There were chills and sweats in all of the cases, two of the cases having night sweats. At least 75 per cent of the cases had temperatures ranging from 101° to 105° F. In fifteen the temperature rises were periodic. An afternoon type was usual. The pulse was increased with temperature.

In eight of the cases muscular pains were reported. In four there was arthritis. Two had neuritis. The back and neck were the favorite site of arthritis. One patient had arthritis that would shift from joint to joint. There was black blood at the menstrual period in one of the three cases in women. The period lasted five days. Vaginal examination showed the cervix to be swollen and blue.<sup>11</sup>

In one-half the cases the spleen was enlarged. In one-fourth the cases the liver was palpable. In none of the cases were the lymph

phatic glands reported to be involved. One case had red spots as in typhoid.

In all these cases the blood agglutinated *brucella abortus* in a 1:300 or more titer. In the majority of the cases there was a slight reduction of the red blood cells. White cell count ranged from twenty-two hundred to seventy-five hundred. As a rule the lymphocytes were increased to nearly 45 per cent. The blood pressure was reduced slightly. In one patient fifty years old it was 210 systolic and 78 diastolic. In another patient thirty-five years old it was 114 systolic and 74 diastolic.

In one case X-ray study showed mottling of the upper right lobe of the lung with no parenchymatous change. The basal metabolic rate was taken in another case and was found to be plus eight.

Most of the treatment has been symptomatic—much after the method of treating typhoid. The cases drag on from several months to several years, with relapses. There are two cases<sup>13</sup> reported as having been fatal, but these two cases were not clean-cut enough to rule out co-existing factors and were not included in this series. Carpenter and Merriam,<sup>16</sup> in two well-studied cases, used mercurochrome intravenously, and report recovery in less than four weeks in each case.

#### SUMMARY

I. Infections with *brucella* (*alcaligenes*) *abortus* are more common than is usually supposed.

II. Confusion is found in the literature concerning the nomenclature of the *melitensis* group. "*Brucella*" seems the most accepted name for the genus.

III. Infection is characterized by insidious onset, great loss of weight, and prolonged undulating fever.

IV. Diagnosis is confirmed by specific agglutination.

V. Treatment is on a similar basis to that of typhoid. Encouraging results reported from the intravenous use of mercurochrome seem to justify further investigation.

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### THE INCIDENCE AND EARLY DIAGNOSIS OF PYORRHEA ALVEOLARIS IN CHILDHOOD.\*

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DEFINITION.—Pyorrhea being a discharge of pus, pyorrhea alveolaris may be defined as a purulent inflammation of the dental periosteum, or a breaking down of the tissues around the tooth. It is known to the profession as periodontoclasia and is a form of oral sepsis, of importance both locally and systemically. It has been known since the earliest times, even long before Jorjac, a French dentist, described it as pyorrhea in 1822. Fincinius, a physician from Dresden, related bacteria to dental caries, and Riggs in the thirty years from 1845 to 1875 indelibly associated his name with the disease and its treatment. Since that time, it has been studied persistently, and the names of Miller, Allen, Pickerel, Bland Sutton, Talbott, etc., laid a basis for the work of the last fifteen years, which is reviewed briefly in the bibliography.

The diagnosis as opposed to periapical abscess is not difficult, a careful inspection of the gums and gentle massage being all that is necessary. The examination of the mouth and the initiation of the proper hygiene early is the best preventive. Yet, comparatively little note has been taken of the origin of pyorrhea, whether it occurs in childhood, and how early it starts. We have, therefore, thought a report on the first clinical evidence of pyorrhea would be of some value.

OCCURRENCE.—Out of the last five hundred consecutive admissions to this Clinic, there have been thirteen cases of pyorrhea. This compares to a larger analysis made among the first thirty-five hundred cases going through the Clinic, where ninety-nine cases were observed. The incidence during the last several years has, therefore, remained fairly constant. From 2 to 2½ per cent of all examinations reveal pyorrhea. These children are selected for mental hygiene study by the physicians and local agencies of the community, and may be taken as representative of families in the community in only moderate circumstances. The last five hundred examinations I have culled

\*From the Pediatric Department of the Children's Memorial Clinic, Richmond, Va.



out and have direct smears as well as histories on all cases where pyorrhea was present. The average age of the children was fifteen years, the youngest being an eight year old white boy and the oldest a twenty year old negro girl.

**HISTORY.**—The history in most cases was of little assistance. The majority of cases had no complaints to make of their teeth. Toothache and sore gums were occasional complaints only. Several had had tonsillitis. One had had quinsy. Very few knew that their breath had a bad odor, and very few had ever been to see a dentist.

Almost all cases were in children without proper parental care, and many were children whose attendance at school had been too irregular for periodic examinations to have revealed this trouble.

Practically none of the children cleaned their teeth regularly and dietary irregularities were present in almost every case. In most cases there was a rather marked absence of fresh fruit and vegetables. Fresh meat was eaten rarely and little milk. The diets were of cheaper types consisting mainly of carbohydrates. In many cases the children, on questioning, gave a history of indigestion.

**SYMPTOMS.**—Pyorrhea when not treated proceeds locally to progressive necrosis with actual loosening of the teeth and caries. Systemically, possibilities are more varied. Among the children examined in the Clinic no such advanced cases have been found and it is questionable whether extensive lesions occur with any frequency in childhood. Unhealthy spongy looking gums which bled easily, and which yielded a drop of pus at the alveolar margin on gentle massage may be taken as typical findings. Occasionally, some of the following symptoms were also present: Excess food debris around teeth, tartar deposits, fetor oris, ulceration, enlarged tonsils or other breathing abnormalities; carious, broken, aching, cracked or fissured teeth; irregular chewing surface, wide spacing, crowding, absent teeth, sore mouth, sore gums, coated tongue, cervical adenitis, constitutional syphilis, etc.

**ETIOLOGY.**—Smears were made on all cases. The gum was first wiped clean and a drop of pus expressed from the most typical lesion. The findings in these smears were quite uniform—bacteria, pus cells, fusiform bacilli, spirilla, and quite often cells resembling amoeba.

A careful study of the literature on the

etiology reveals practically no agreement as to specific agent. It suggests that pyorrhea is caused by no single agent any more than an infected finger is always caused by one type of micro-organism. There is, however, an interesting report on direct contagion (see Whittingdale below.)

On all smears examined, spirilla were demonstrated in numbers. And since Noguchi in 1912 isolated in pure culture a *treponema mucosum* from pyorrhea, which while in pure culture gave the characteristic smell of pyorrhea, we may use the finding of similar organisms as an aid in the diagnosis at any rate. These *treponema* in numbers comparable to a Vincent's infection, together with pus, are the best criteria we have had of a pyorrheal infection. (There is nothing to prove they are the sole etiological agent.) Amoeba and streptococci are incriminated by many workers and their investigations seem to prove that systematically the streptococci are quite pathogenic. Local diagnosis means early diagnosis. Culture of streptococci from the mouth as such means little unless pathogenicity is proved, and this takes detailed and careful work.

**PROPHYLAXIS.**—The children, when old enough, were given a sheet of instructions regarding the care of the mouth and teeth. They were advised where possible to consult their dentist and were told of the advantage of toothbrush and cleanser in the proper massage of the gums. No medicinal treatment is given from the Clinic; where necessary the children are referred to the Medical College of Virginia Dispensary.

**SUMMARY.**—We have, therefore, amongst a Clinic clientele of children, an incidence of 2½ per cent of pyorrhea alveolaris, presenting characteristic findings, without late changes, and indicating a possibility that the plan of initiating the proper mouth hygiene while a child is in school will prevent the development of pyorrhea alveolaris later in life.

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### MILIARY ABSCESES OF THE LUNG. Staphylococcus Aureus Abscesses Following Pemphigus Neonatorum.

By A. E. SEEDS, University, Va.

From the Pediatric Department and the Pathological Laboratory, University of Virginia.

The following necropsy was considered to be of interest because of these observations:

1. The lesions had a gross pathological appearance of tuberculosis but were of non-tuberculous origin.

2. The large mononuclear cell appeared as the predominant exudative cell, and recent attention has been focussed on the cell as a characteristic of tuberculosis.

3. A fatal infection with staphylococcus aureus occurred with infrequent polymorphonuclear cells in the exudate.

4. A gastric ulcer, apparently secondary to the bacterial infection appeared near the pyloric end of the stomach.

**CLINICAL HISTORY.**—A colored male infant appeared in good condition at birth. The mother was a primipara, with no history nor other findings suggestive of venereal disease. On the second day the baby cried weakly and vomited blackish brown material at short intervals. The right eye showed a purulent discharge and the clotting time was prolonged. On the third day the temperature rose to 101° F, and continued high until death. On the fourth day a bullous impetiginous rash was noted, which spread rapidly, and at this time a negative Wassermann and blood culture were reported. On the seventh day evidences of pulmonary involvement were noted, and on the tenth day the child died, having lost weight steadily from birth.

**NECROPSY.**—Microscopic findings: A poorly nourished colored male infant. Superficial flaccid bullae were widely distributed over the

body. Some of these had exfoliated leaving red raw surfaces. No lymph glands were palpable. The viscera showed no unusual changes with the exception of the heart, the stomach and the lungs. The heart showed minute fresh vegetations on the mitral valve. In the stomach an ulcer of a 2 mm. diameter, with overhanging edges and a necrotic floor, reaching down into the muscular coat, was found at the pyloric orifice. An enlarged, soft lymph node, the size of a pea was found along the greater curvature under the peritoneal coat of the stomach. Both lungs were studded with pinhead to tackhead sized areas of a yellowish caseous material, surrounded by zones of congestion, slightly more numerous about the bases. On section these areas showed central masses of a fairly firm caseous material surrounded by a zone of congestion. These areas seemed identical with miliary tubercles, in which rapid necrosis is occurring.

**MICROSCOPIC FINDINGS.**—The only tissues of interest were the stomach, the lung, and lymph node. These were stained by the Ehrlich and Gram-Weigert methods, and by routine hematoxylin and eosin with paraffine embedding. Non acid-fast, Gram-positive cocci were demonstrated in the gastric ulcer. They lay in a pocket in the submucosa, and were surrounded by mononuclears, chiefly of the small lymphocyte type. Very few polymorphonuclears were seen. Necrosis was observed in the overlying mucosa.

Sections from the lungs appeared identical. Areas composed of necrotic lung tissue and exudate cells were found heavily loaded with Gram-positive cocci. These central masses were surrounded by a zone of exudate composed of plasma cells, large and small mononuclears, and a moderate number of epithelial cells. Occasional polymorphonuclears were found. There was no evidence of liquefaction or encapsulation.

The lymph node showed an endothelial proliferation, hemorrhage and probable erythropoiesis. No necrosis and no organisms were found.

In conclusion, a necropsy performed on an infant of ten days, with a clinical condition of pemphigus neonatorum, showed multiple lesions in the lungs morphologically similar to tubercles. These were identified as staphylococcus abscesses by the finding of the cocci, and the absence of tubercle bacilli.



## President's Message

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At the end of the meeting at Charlottesville, when I assumed the duties of President of the Medical Society of Virginia, there were scarcely a dozen members present. Consequently I had no opportunity to talk personally with the members of the Society, to express to them my appreciation and deep gratitude for the honor which they have conferred upon me. I, therefore, have to take this method of talking to them through the pages of the VIRGINIA MEDICAL MONTHLY.

I, along with practically all the other members of the Society, have always felt that it would be my highest ambition to become the President of the Medical Society of Virginia. At the same time I have realized that nothing would be worse for the Society or for me than to solicit personally such an honor, for the only way that such an honor should be obtained is through work successfully accomplished for the Society, for the Profession and for the public at large. If the Society has honored me for any one of these reasons I feel deeply gratified indeed.

Along with the feeling of satisfaction, which necessarily comes to one who has received a high honor, comes the feeling of responsibility. And at this time the responsibility for a leader in the Medical Profession is unusually great. On every side we seem to be criticized, in the papers that were read at our Society meeting, in the medical magazines, in the popular magazines, and in the daily press we are blamed for not being able to meet the situation which is arising throughout the country. On the one hand it is said we are not giving to the people the full value of the medical discoveries, which have recently been made. On the other hand, it is said, that the people are not able to pay for the high cost of medical care, which is in turn brought about by giving them the full benefit of these same

medical discoveries. We are indeed between the horns of a great dilemma.

Many men are giving thought to this problem and radicals are even threatening the Medical Profession with the control of Boards of Health, Big Business, or some other bugaboo. I for one do not feel that the Medical Profession is due the blame, which is now being placed upon it. On the other hand I feel that it is incumbent upon us to put ourselves in the best possible condition so that we may be able to meet criticism, whether just or unjust. It is certainly better that any needed reform should come from within rather than through some more or less hostile organization.

The Medical Society of Virginia through its committees on Medical Education and Post-Graduate Studies is making an attempt at solving one side of this great problem. The State Society can, however, only give advice and present opportunities; the individual man must take care of these opportunities himself, although he can be greatly aided by his local society. The other phases of the broad proposition still remain to be considered in Virginia. I hope the County Medical Societies will consider this question from all viewpoints and in so doing, as President, I will be delighted to cooperate in any way I can. One man can do but little but, with the advice and cooperation of the physicians of Virginia, great results may be brought about. Please remember that during this year I will be at the service of the physicians and the local medical societies. Do not hesitate to write me or to call on me if you think I can help. On the other hand, I will expect all of you to give your best thought to this problem and when you have thought the matter out give me your advice.

CHARLES R. GRANDY, M. D.,  
*President, Medical Society of Virginia.*

# PROCEEDINGS

## Medical Society of Virginia

### MINUTES OF THE SIXTIETH ANNUAL MEETING OF THE MEDICAL SOCIETY OF VIRGINIA.

Charlottesville, Virginia, October 22, 23, 24, 1929.

#### GENERAL SESSIONS

Tuesday, October 22

8:00 P. M.

The Medical Society of Virginia met in Cabell Hall, University of Virginia, Charlottesville, and was called to order by Dr. Lawrence T. Royster, Chairman of the Committee on Arrangements.

The invocation was said by the Reverend George L. Petrie, Charlottesville.

Chairman Royster introduced the President, Dr. J. Bolling Jones, of Petersburg, who addressed the Society on the subject of "The Physician's Responsibility to his Patient and to the Public, and the Public's Obligation to Their Physician."

Dr. Joseph A. White, Richmond, chairman of the Membership Committee, after making a few appropriate remarks, read the names of the following members of the Society who had died during the year, and the audience then stood for a moment in silent tribute to those departed.

#### List of Twenty-nine Members of the Society Whose Deaths Have Been Reported Since the 1928 Meeting.

Dr. William Claiborne Powell, Petersburg, Va., October 22, 1928.

Dr. Walter Adgate Warfield, Alexandria, Va., October 24, 1928.

Dr. Ray Jackson Neff, Newport News, Va., October 21, 1928.

Dr. Rawley W. Martin, Jr., Chatham, Va., October 18, 1928.

Dr. George Ransom Faircloth, Baltimore, Md., Fall, 1928.

Dr. H. A. Nash, Glenmore, Va., July 9, 1925 (just reported).

Dr. Achille Murat Willis, Richmond, Va., January 3, 1929.

Dr. L. B. Yancey, McGaheysville, Va., death reported by postmaster, December, 1928.

Dr. T. Edwin Baird, Norfolk, Va., January 6, 1929.

Dr. Robert H. Latane, Buchanan, Va., January 12, 1929.

Dr. Nathaniel R. Smith, Gainesboro, Va., May, 1928.

Dr. Homer Silon Henkel, Staunton, Va., February 12, 1929.

Dr. Lyndsay Wolford Newland, Splashdam, Va., December 24, 1928.

Dr. John W. Wallace, Covington, Va., April 1, 1929.

Dr. Frederic C. Tice, Roanoke, Va., February 10, 1929.

Dr. Joseph Martin Burke, Norfolk Va., April 5, 1929.

Dr. Rees Bowen Gillespie, Tampa Bay Quarantine Station, Fla., April 4, 1929.

Dr. William Herbert Lewis, Lawrenceville, Va., May 3, 1929.

Dr. R. Lester Hudgins, Farmville, Va., July 2, 1929.

Dr. George Armistead Noland, Ashburn, Va., June 10, 1929.

Dr. Edward Lionel Marshall, Big Island, Va., June, 1929.

Dr. Oscar Grant Pearson, Venter, Va., August 8, 1929.

Dr. J. Alfred Riffe, Covington, Va., August 5, 1929.

Dr. Waller Jameson, Roanoke, Va., August 9, 1929.

Dr. Asbury Carlton Swimley, Winchester, Va., August 30, 1929.

Dr. George Taylor Klipstein, Alexandria, Va., September 5, 1929.

Dr. George J. Williams, Hilton Village, Va., October 1, 1929.

Dr. Emory E. Bell, Chincoteague, Va., September 14, 1929.

Dr. William Frank Ferguson, Premier, W. Va., October 4, 1929.

President Jones introduced Dr. Hugh S. Cumming, Surgeon General United States Public Health Service, Washington, D. C., who read an address entitled "Relation of the Medical Profession to the Public."

Dr. Charles R. Stockard, Cornell Medical School, New York City, was introduced by the President and gave an illustrated address entitled "Some Features of the Inheritance of Constitutional Types."

The following papers were read:

"Examination of Pre-School Child"—Dr. W. A. Brumfield, Farmville.

"Observations Upon Points of Interest in Dealing With the Problems of Child Welfare"—Dr. J. H. Hiden, Pungoteague.

"Child Welfare Work: What the Physicians of Mecklenburg County Are Doing in Child Conservation"—Dr. A. T. Finch, Chase City.

The three above papers were discussed by Drs. Wm. B. McIlwaine, Petersburg; B. S. Yancey, Chase City, and C. T. Jones, Petersburg.

The program having been completed, the evening session then adjourned.

#### Wednesday, October 23, 1929

The Medical Society of Virginia met in Cabell Hall at 9:30 A. M., with Dr. Charles R. Grandy, President-elect, presiding.

Dr. H. B. Mulholland, University, read a paper entitled "Recent Progress in Internal Medicine."

Dr. G. Paul LaRoque, Richmond, read a paper entitled "Recent Progress in General Surgery."

A paper entitled "Appendicitis in the Middle-Aged" was read by Dr. Frank S. Johns, Richmond, and Dr. Herbert C. Jones, Petersburg, read a paper entitled "Differential Diagnosis of Appendicitis and Right Urinary Lesions, With Report of Cases." These papers were discussed by Drs. J. Morrison Hutcheson, Richmond; John H. Neff, University; D. D. Talley, Richmond; F. C. Rinker, Norfolk, and G. Paul LaRoque, Richmond.

Dr. Charles W. Putney, Staunton, read a paper entitled "Fracture of the Pelvis, With Report of a Case" (illustrated by lantern slides), which was discussed by Dr. A. L. Tynes, Staunton.



Chairman Grandy presented Dr. William Gerry Morgan, of Washington, D. C., President-elect of the American Medical Association. Dr. Morgan, who is a member of the Medical Society of Virginia, spoke as follows:

"I need not say that it is a very great privilege and a very great pleasure for me to have an opportunity to visit Charlottesville at such a marvelous time, upon the occasion of such a celebration. You all have reason to feel gratified and proud. It has been one of the most interesting experiences which I have had. The order of the exercises has been of an uncommonly high type, and they must have appealed to every man and woman who has had the opportunity to be present. I seize these opportunities during the period of my probation as President-elect of the American Medical Association in order to gain an idea of the working conditions of the healing art in different parts of the country. Even by the time I am inducted as full president I shall have learned far too little to make me worthy of the high office to which I have been exalted, but it is my keen desire to learn as much as I can.

"I have had a very signal privilege extended to me here in having the opportunity of seeing your House of Delegates at work. I have been in the House of Delegates in a number of States already, and I can say with sincerity that I have yet to see a House of Delegates in action that impressed me as much as what I have seen yesterday and this morning here in Charlottesville. You have a House of Delegates that is of a high order of intelligence; the members are interested; they give careful consideration to every matter that comes before them, and their final decision is worthy of the thought which they have given it.

"There is just one matter for which I want especially to commend and compliment your House of Delegates, and it is the method for post-graduate courses which they are formulating and hope to put into operation. It is one thing to prepare and offer opportunities for post-graduate work, but it is quite another matter to induce the men to make use of and accept those opportunities, and the reason for it is that mostly post-graduate work comes at a certain set time of the year at one particular locality, and it is difficult for us who lead busy lives to find the opportunity to go to distant points at a certain time, even for our own benefit. But with your projected plan the post-graduate work is going to be taken to the door of the practitioner at several different times in the year, which gives him an opportunity, without great effort or expense, to avail himself of the opportunity. I shall take the privilege of calling the attention of other State assemblies to this very forward step which you have so wisely initiated.

"Again let me express my appreciation for the many courtesies I have received since I have been in your charming city."

At the request of President-elect Grandy, who was presiding over this meeting, Dr. Stuart McGuire, Richmond, took the chair.

Dr. C. C. Coleman, Richmond, read a paper entitled "Important Points in the Treatment of Acute Head Injuries," which was discussed by Drs. E. P. Lehman, University; R. L. Payne, Norfolk; B. R. Tucker, Richmond, and by Dr. Coleman, in closing.

The President, Dr. J. Bolling Jones, then took the chair.

A paper entitled "Some Unusual Problems in Surgical Diagnosis," illustrated by moving pictures, was read by Dr. T. Jefferson Hughes, Roanoke, and was discussed by Dr. Frank Helvestine, Roanoke.

Dr. William W. Rixey, Richmond, read a paper entitled "Problems in Proctology," which was discussed by Dr. E. H. Terrell, Richmond.

Dr. Charles Bruce Morton, University, read a paper entitled "Stenosis of the Pylorus With Spasm and Hypertrophy in Adults: Surgical Aspects," which was discussed by Dr. V. W. Archer, University.

President Jones read the following telegram from the Southern Medical Association:

"Birmingham, Ala., October 23, 1929.

Virginia Medical Society,

In Convention Assembled, Charlottesville, Va.

Greetings:

Hope you are having great meeting.

Southern Medical Association."

A paper entitled "Continuous Irrigation Therapy in Infected Wounds," was read by Dr. Linwood D. Keyser, of Roanoke, and was discussed by Dr. W. H. Goodwin, University, and by Dr. Keyser, in closing.

The paper on "Ludwig's Angina: Case Report," by Drs. E. G. Gill and W. R. Whitman, was read by title.

The paper of Dr. Clarence Porter Jones, Newport News, entitled "Experience With Old Typhoid Vaccine in the Treatment of Focal Infections," was read by title.

A paper by Dr. William H. Higgins, Richmond, on "Abdominal Manifestations of Tetany," was read by title.

Dr. Richard W. Fowlkes, Richmond, read a paper on "The Treatment of Erysipelas With X-Ray."

The morning session then adjourned.

#### Afternoon Session

The Medical Society of Virginia met in Cabell Hall at 2:30 P. M. and was called to order by President Jones.

The paper of Drs. Dewey Davis and Douglas VanderHoof, Richmond, entitled "Malignant Hypertension in Young People," was read by Dr. Davis and was discussed by Dr. D. G. Chapman, Richmond, and by Dr. Davis in closing.

Dr. J. D. Willis, Roanoke, read his paper entitled "Depressor Substance of Liver in the Treatment of Hypertension," which was discussed by Dr. W. B. Porter, Richmond, and by Dr. Willis in closing.

The paper of Dr. J. Morrison Hutcheson, Richmond, entitled "The Problem of Coronary Disease," was read by title.

Dr. James W. Hunter, Jr., Norfolk, read a paper on "The Extra-Systole," illustrated by lantern slides, which was discussed by Drs. J. C. Flippin, University; A. L. Tynes, Staunton, and T. Duckett Jones, Boston, Mass.

Dr. T. Duckett Jones, Boston, Mass., read a paper entitled "Some Phases of Rheumatic Disease," which was discussed by Dr. J. Edwin Wood, Jr., University.

Dr. C. Lydon Harrell, Norfolk, read his paper entitled "Thyroid Deficiency: A Clinical Study," which was discussed by Drs. James H. Smith, Richmond; C. J. Andrews, Norfolk; L. M. Blackford, Atlanta, Ga.; W. H. Higgins, Richmond, and by Dr. Harrell in closing.

The afternoon session then adjourned, that the members and visitors might have the privilege of attending a barbecue at Farmington Country Club, which entertainment had been arranged by the local committee.

#### Evening Session

The Medical Society of Virginia met in Cabell Hall at 7:30 P. M., with President J. Bolling Jones presiding.

Dr. Warren T. Vaughan, Richmond, read a paper on "Food Allergy as a Common Problem."

A paper on "Some Aspects of the Periodic Examination" was read by Dr. A. A. Houser, Richmond.

Dr. J. Allison Hodges, Richmond, read a paper entitled "Some Suggestions for Diagnostic Clinics and Current Clinical Reviews in the Society's Post-Graduate Work," which was discussed by Dr. J. W. Preston, Roanoke.

Dr. William F. Drewry, Richmond, read a paper entitled "A State Mental-Hygiene Program," which was discussed by Dr. James K. Hall, Richmond.

Dr. F. J. Wright, Petersburg, offered the following resolution to be addressed to Dr. John Staige Davis, an ex-president of the Society, and moved its adoption:

"Resolved, that the Medical Society of Virginia, learning of your extreme illness, extends its sympathy and hopes for your ultimate recovery; and, further

"Resolved, that a copy of this resolution be sent to Dr. Davis and be spread upon our minutes."

The motion to adopt the resolution was seconded and carried.

After some introductory remarks by Dr. J. Shelton Horsley, Chairman of the Virginia Section of the American Society for the Control of Cancer, the Canti film, showing the growth and development of normal cells and of cancer cells and the effect of radium treatment, was shown. This film was secured through the courtesy of the Virginia Section of the American Society for the Control of Cancer.

Dr. E. L. Kendig, Victoria, read a paper entitled "The Relationship of Economics in Medicine to Our Professional Ideals."

Dr. B. B. Bagby, Courtland, read a paper on "The Physician's Part in the Public Health Program," which was discussed by Drs. Charles R. Robins, Richmond; R. L. Raiford, Franklin; Greer Baughman, Richmond; W. A. Brumfield, Farmville; R. D. Bates, Newtown; President J. Bolling Jones, Petersburg, and by Dr. Bagby in closing.

The paper of Dr. Roy K. Flannagan, Assistant State Health Commissioner, Richmond, entitled "Medical Jazz," was read by title.

The evening session then adjourned.

#### Thursday, October 24, 1929

The Medical Society of Virginia met in Cabell Hall at 9:00 A. M., with President J. Bolling Jones in the chair.

Dr. J. G. Lyerly, Richmond, read a paper on "Extradural Hemorrhage."

Dr. Don Daniel, Richmond, read a paper on "The Treatment of Varicose Veins by the Injection Method," and Dr. Frank Helvestine, Jr., Roanoke, read a paper on "The Chemical Obliteration of Varicose Veins." These two papers were discussed by Dr. T. J. Hughes, Roanoke; Dr. Lewis Angle, Richmond; Dr. Hugh Tront, Roanoke, and by Drs. Daniel and Helvestine in closing.

A paper entitled "Arachnidism: Report of a Case Simulating Diffuse Peritonitis," was read by Dr. W. Lowndes Peple, Richmond, and was discussed by Drs. P. B. Barringer, University; W. A. Brumfield, Farmville; W. W. Wilkinson, LaCrosse; again by Dr. Barringer; by President J. Bolling Jones, and in closing by Dr. Peple.

Owing to the absence of Dr. Stuart McGuire, Richmond, because of indisposition, his paper on "Mooted Points in the Diagnosis and Treatment of Diseases of the Gall-Bladder" was read by title.

Dr. R. L. Payne, Norfolk, read a paper entitled "Genital Prolapse Following Total Hysterectomy:

A New Operative Procedure" (illustrated by lantern slides), which was discussed by Dr. C. J. Andrews, Norfolk.

Dr. J. Shelton Horsley, Richmond, read a paper on "Vaginal Hysterectomy: Its Indications and Technic," which was discussed by Drs. Paul W. Howle, Richmond; R. L. Payne, Norfolk; P. St. L. Moncure, Norfolk; E. T. Hargrave, Norfolk, and by Dr. Horsley in closing.

President Jones made the following announcement: "A few minutes ago this gavel was presented to the Society by the Walter Reed Memorial Commission, and in future the Society will have this gavel to use at its meetings." The gavel is made from a hand-hewn white oak sill taken from Belroi, the birthplace of Dr. Walter Reed.

A paper entitled "Perineotomy versus Perineal Laceration," was read by Dr. Robert P. Kelly, Lynchburg, and was discussed by Drs. C. J. Andrews, Norfolk; Lewis M. Allen, Winchester, and Greer Baughman, Richmond, and in closing by Dr. Kelly.

Dr. Eugene L. Lowenberg, Norfolk, read a paper entitled "The Uses and Abuses of Medical and Surgical Diathermy in Gynecology," which was discussed by Drs. C. J. Andrews, Norfolk; R. L. Raiford, Franklin, and Joseph Bear, Richmond, and in closing by Dr. Lowenberg.

Dr. Southgate Leigh, Norfolk, read a paper on "Treatment of Infected Abortions," which was discussed by Drs. G. B. Byrd, Norfolk, and Lewis M. Allen, Winchester.

Dr. Lewis M. Allen, Winchester, spoke on the subject of "When a Woman Should Have a Baby, and Why," and Dr. Greer Baughman, Richmond, read a paper entitled "Conservative Obstetrics." These two papers were then discussed by Drs. M. Pierce Rucker, Richmond; G. B. Byrd, Norfolk, and C. J. Andrews, Norfolk, and in closing by Drs. Baughman and Allen.

The morning session then adjourned.

#### Afternoon Session

The Medical Society of Virginia convened in Cabell Hall at 2:50 P. M. and was called to order by President J. Bolling Jones.

Dr. M. Pierce Rucker, Richmond, read a paper entitled "Vagitus Uterinus," which was discussed by Dr. R. H. Garthright, Vinton, and in closing by Dr. Rucker.

A paper entitled "Pulmonary Findings in a Clinical Study of Ascaris Infestation in Children," was read by Dr. Charles W. Scott, Richmond, and was discussed by Drs. W. A. Brumfield, Farmville, and L. T. Royster, University, and in closing by Dr. Scott.

The hour of 3:30 P. M. having arrived, the report of the House of Delegates was next presented by special order by the Executive Secretary-Treasurer and General Manager, Miss Agnes V. Edwards.

President Jones then said he would like, at this time, to present Dr. J. Allison Hodges, of Richmond, newly-elected President-elect, who addressed the Society as follows:

"My friends, I wish to thank you for this high honor, and I give you my profound appreciation. I believe that you have bestowed this honor, the greatest that can be bestowed by the medical profession in this State, for the purpose of service; and in that spirit I come to you and pledge my best efforts to advance the work that has already been so well done by my colleagues and to continue to develop scientific and organized medicine in this State to the best of my ability. I wish you to know, too, that always this Society shall be with me the



connecting link of any medical effort that is developed in this State, and I shall endeavor to so co-ordinate the work that it may be to the best interests of the members of the profession as well as to the citizens of this whole community.

"I again thank you."

Dr. Samuel Newman, Danville, read a paper entitled "A Graphic Presentation of Improvement of Nutrition in a Children's Preventorium," which was discussed by Dr. L. T. Royster, University.

A paper on "The Early Diagnosis of Whooping Cough" was read by Dr. W. Ambrose McGee, Richmond, and was discussed by Dr. L. T. Royster, University, and in closing by Dr. McGee.

A paper by Dr. St. Geo. T. Grinnan, Richmond, on "The Genes of Inheritance in Human Affairs," was read by title.

The paper on "The Stability of Liquid Preparations of Digitalis," by Dr. C. C. Haskell, East Orange, N. J., was read by title.

The paper of Drs. E. E. Watson and Churchill Robertson, Salem, entitled "Conservative Treatment of Pulmonary Abscess," was read by Dr. Robertson and was discussed by Dr. Dean B. Cole, Richmond. In closing the discussion, Dr. Robertson showed some lantern slides illustrating the paper.

The paper of Drs. Dean B. Cole and Edgar C. Harper, Richmond, entitled "Instruments of Precision Essential for Correct Diagnosis and Treatment of Chest Conditions," was read by Dr. Harper and was discussed by Dr. Cole.

Dr. Fletcher J. Wright, Petersburg, read a paper entitled "Modern Treatment of Pulmonary Tuberculosis," which was discussed by Dr. W. E. Brown, Sanatorium; President J. Bolling Jones, and in closing by Dr. Wright.

The paper of Drs. Richard H. Meade, Jr., Charlottesville, and Frank B. Stafford, Sanatorium, entitled "Some Effects of Paralysis of the Diaphragm in the Treatment of Pulmonary Tuberculosis," was read by Dr. Meade and was discussed by Dr. J. B. Nicholls, Catawba Sanatorium, and in closing by Dr. Stafford.

Dr. Nelson Mercer, Richmond, read a paper entitled "A Vicious Circle in the Veterans' Bureau."

The program of the afternoon session having been completed, and it having been decided that the attendance did not justify holding an evening session, the following papers appearing on the program for the evening session were read by title:

"An Undescribed Genital Lesion"—Dr. T. Latane Driscoll, Richmond.

"Beriberi in Virginia, With Report of a Case"—Dr. Oscar Swineford, Jr., University.

"Some Cases"—Dr. Charles S. Webb, Bowling Green.

"Psychology of Mental Diseases: Relation to the General Practice of Medicine"—Dr. Bittle C. Keister, Harrisonburg.

"Neurasthenia"—Dr. William Edward Fitch, Bedford Springs, Penna.

#### Induction of New President

PRESIDENT JONES: "I have now come to the performance of my most pleasant duty, but before undertaking it I want to thank you gentlemen and the entire Society for the wonderful support you have given me throughout the year. To have been allowed to preside over this meeting, particularly in this place, is a memory I shall always cherish. I know that I have made mistakes, but I know you gentlemen understand that we all make mistakes.

"I am delighted, Dr. Grandy, to present you with this gavel, and I now turn over to you the closing of this meeting."

PRESIDENT GRANDY: "Gentlemen, there is absolutely nothing for me to say except that I appreciate most sincerely the honor that has come to me in being the leader of the medical profession, as constituted in the Medical Society of Virginia, through the coming year. I realize that there are many serious problems; I cannot think of it without thinking of the serious duties which the president of any medical association now has, because from every side there is coming pressure to make us change, to make us commercialized, to make us take up the side of efficiency and make us put that ahead of our duty to our patient, to make us put the dollar ahead of the patient. The pressure is becoming hard. We have had at this meeting practically nothing but criticism of what we are supposed to be doing, but I do not believe we are nearly so bad as we are made out to be. I know we can improve; I know every one of us can improve. I am heartily in favor of the work that Dr. Preston and Dr. Hodges have been pushing, to bring us up to date. I know that I need it terribly, and I know others need it. If the Medical Society of Virginia can make itself useful, as I suppose it can, by this post-graduate work, I am sure that we can work out a course for ourselves and not be pushed down by the politicians and not be put in the position of making an examination for less than a dollar, as was proposed by one employee of the State.

"I thank you gentlemen for remaining, and I look forward to seeing you at our next meeting in Norfolk. I hope at that time we shall have as good a meeting and as good a time as we have had here in Charlottesville."

The Society then adjourned *sine die*.

#### BUSINESS SESSIONS.

##### The Council.

The Council of the Medical Society of Virginia met at Cabell Hall, University of Virginia, October 22, 1929, at 3 P. M.

Present: Dr. J. Bolling Jones, president; Dr. Charles R. Grandy, president-elect; Drs. R. D. Bates, E. C. S. Taliaferro, Lawrence T. Price, I. C. Harrison, R. A. Bennett, J. E. Knight, C. B. Bowyer, and Miss Agnes Edwards, secretary.

The purpose of this meeting was to prepare a budget for the ensuing year, that it might be presented the House of Delegates for approval.

The report of the Auditor was presented. After a discussion of the receipts and disbursements for the past financial year, it was moved, seconded and carried that, based on the receipts and disbursements of the past year, the new budget for the MONTHLY should be \$10,987.00 for both resources and expenditures.

The budget for the work of the Society was next considered. It was estimated that the income applicable to Society expenses would be \$5,110.00 and the expenditures \$5,035.00. It was moved, seconded and carried that these figures be adopted as the budget for the work of the Society, exclusive of the MONTHLY. Appropriations were included in this for specific features and the work of certain committees.

The question was brought up by the Secretary-Treasurer of the collection of past due per capita assessments of members, it being a duty of the Council to make all effort possible to collect these. It was moved, seconded and carried that the Secretary-Treasurer notify each Councilor of the number of delinquents in his district and that he make any suggestions possible.

There being no further business, the Council adjourned.

### House of Delegates.

The House of Delegates of the Medical Society of Virginia held its first meeting at Cabell Hall, University of Virginia, October 22, 1929, at 3:30 P. M. The meeting was called to order by Dr. J. Bolling Jones, Petersburg, President. Roll call showed considerably more than a quorum present.

Dr. J. Bolling Jones, President, gave the following report:

#### Report of the President.

##### TO THE MEMBERS OF THE HOUSE OF DELEGATES:

I am pleased to report that the various committees to which you have delegated specific work have been active and made real progress. Their reports which will be presented to you I believe will show this. I wish to thank all committees for the earnest work which they have done in the interest of the Society. It has been my pleasure to meet with several of them, and I heartily endorse the recommendations that they will make. It strikes me that we are now sufficiently organized. My impression is that all special committees not showing by their reports that their work is complete, should be continued. Possibly the matter of the overlapping of the functions of two of your committees, namely, Medical Education and Hospitals and Post-Graduate Study by the State Society, needs some attention. Bear in mind that one is a standing committee and one a special committee.

It was also my pleasure to be present at the *ad interim* meeting of the Council. The report of the work accomplished there will be presented you by your Secretary. It was a pleasure, according to instructions of the Council, to appoint Dr. Price a committee of one to look into the wisdom of holding a joint meeting with the Dental and Pharmaceutical Societies of the State. His report will doubtless be presented you.

It has also been my pleasure to appoint Dr. Taliaferro as delegate to the A. M. A. in the place of the late Dr. Willis. Later on, being informed by Dr. Taliaferro that he could not attend, we appointed Dr. Fred. Hodges, who represented us; of course, this holds good only until the end of this session. On being informed by Dr. Anderson that he would not be able to serve on the Child Welfare Committee, we appointed Dr. Finch to take his place on this committee and made Dr. W. P. Jackson, of Roanoke, its chairman.

Dr. Brydon informs me that she feels that she should be dropped from the membership of the Maternal Welfare Committee.

I think that the appropriation of \$500.00 for the Committee on History of Medicine in Virginia should be continued.

I should state that, following instructions by the Council, we appointed an auditor to audit the books of our Secretary-Treasurer. The results of this auditing will be presented to you in due form.

Recently, I was consulted by a representative of the A. M. A. in regard to certain work in which it was thought our Society would be interested. It seemed to me to be of a Legislative character, and we turned this matter over to Dr. Price, chairman of the Legislative Committee, and you will probably hear something from him in explanation.

I have no new work in mind about which to ask your consideration. In closing, I would say, I wish

to thank each and every one of you for the co-operation you have given me in my humble efforts for the Society.

The reports of the Secretary-Treasurer were next presented by Miss Agnes V. Edwards, as follows:

#### Secretarial Report.

##### TO THE PRESIDENT AND MEMBERS OF THE HOUSE OF DELEGATES:

At our 1928 meeting, we reported a membership of -----	1,846
Since then we have enrolled new members -----	49
Lost by death -----	29
Resigned -----	19
Dropped for non-payment -----	7
	55
Making a net loss of 6 members, or a membership now of -----	1,840

The Society has had a good year with a great deal of activity reported by various committees. Our office has accomplished a large amount of routine work.

The Council held its usual winter meeting on February 26th, at which several matters of especial interest were discussed. At this time, the President, Dr. J. Bolling Jones, announced the appointment of Dr. W. P. Jackson, Roanoke, as chairman of the Child Welfare Committee in place of Dr. M. L. Anderson, who was unable to serve. Dr. A. T. Finch, Chase City, was appointed a member of that committee. The President also announced his appointment of Dr. E. C. S. Taliaferro, alternate, as one of our delegates to the American Medical Association, to fill the vacancy caused by the death of Dr. Murat Willis.

Our Society was represented at the Portland meeting of the American Medical Association by our full quota of delegates—Dr. Southgate Leigh and Dr. J. W. Preston, delegates, and Dr. Fred M. Hodges, who was appointed by our President, as neither the third delegate nor either alternate could attend.

We are advised that the Ephraim McDowell marker has been placed in Rockbridge County, Virginia, with the appropriation made by our Society, so that the work of this Special Committee is now completed.

We have paid out \$950 from our Legal Defense Fund for four members. Suits were pending against three of these at time of our last meeting and, in the fourth case, services were rendered prior to the time the Society abolished its medical defense feature.

The \$300 disbursement to the Committee on Post-Graduate Study, indicated in our financial report, has been placed in the Savings Department of First and Merchants National Bank, Richmond, Va., as a special fund, evidenced by Pass Book No. 32649 in our possession.

We have 52 component societies in our organization, including 86 counties and the City of Alexandria. We regret that some of these societies show little if any activity, and we urge the councilors and members to do what they can to arouse interest. Where possible, we would appreciate having component societies elect delegates and alternates in time that their names may be listed in the issue of the MONTHLY preceding our annual meeting. This makes them a matter of record.

Invitations have been received from the Norfolk



County Medical Society and from the Richmond Academy of Medicine for our Society to hold its 1930 meeting in Norfolk and Richmond, respectively.

Our report would be incomplete without a word

of appreciation to members generally for the co-operation they have given our office during the past year. We confidently count on a continuance of your help and good will.

### Financial Reports

#### Financial Report for 9 Months—January 1—September 30, 1928

(That Financial Year Might Start as of October 1)

#### STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS OF THE VIRGINIA MEDICAL MONTHLY AND MEDICAL SOCIETY OF VIRGINIA.

Total Resources, January 1, 1928:

General Fund .....	\$ 4,056.42
Legal Defense .....	1,793.14
Invested at 6% for Legal Defense.....	6,000.00
	<u>\$11,849.56</u>

#### General Fund

On hand, January 1, 1928.....\$ 4,056.42

#### RECEIPTS

##### Virginia Medical Monthly

Advertising .....\$5,390.86

Subscriptions:

Non-Members .....\$ 218.15

Members ..... 2,693.42

2,911.57

Bank Interest ..... 69.43

Sundries ..... 203.74

8,575.60

##### Medical Society of Virginia

Dues (less amount reserved for subscriptions and legal defense) .....\$2,693.42

Bank Interest ..... 69.43

Sundries ..... 55.75

2,818.60

#### DISBURSEMENTS

##### Virginia Medical Monthly

Preparation of Journal .....\$5,571.32

Salaries ..... 1,725.00

Postage ..... 241.25

Rent, Fuel, Janitor, Phone ..... 216.45

Sundries ..... 230.40

\$ 7,984.42

##### Medical Society of Virginia

Salaries .....\$1,725.00

Postage ..... 163.05

Rent, Fuel, Janitor, Phone ..... 217.37

Reporter at Meeting ..... 119.31

Expenses: Officers and Commit-

teemen to meetings ..... 263.77

Public Policy Committee ..... 500.00

Committee on Midwife Work..... 54.50

Com. Ephraim McDowell Mem .. 150.00

Com. Post-Graduate Study ..... 78.75

Sundries ..... 448.87

3,720.62

\$11,705.04

To Balance ..... 3,745.58

\$15,450.62

\$15,450.62

#### STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS OF LEGAL DEFENSE FUND FOR NINE MONTHS JANUARY 1, 1928—SEPTEMBER 30, 1928.

Cash in Bank January 1, 1928.....\$1,793.14

Investments:

Five First Mortgage Gold Bonds..... 5,000.00

6% Real Estate Note..... 1,000.00

\$ 7,793.14

Cash Receipts:

From Members .....\$ 1,346.71

Bank Interest ..... 311.50

1,658.21

\$ 9,451.35

Deduct Cash Disbursements:

Defense of Members ..... 800.00

\$ 8,651.35

Of this amount \$500 additional was invested in Real Estate note at

6%, making total invested.....\$ 6,500.00

Cash in Bank ..... 2,151.35

Total .....\$ 8,651.35

February 26, 1929.

This is to certify that we have examined the books and records of the Medical Society of Virginia, showing the cash receipts and disbursements of the Society from January 1, 1928, to September 30, 1928, inclusive, and find them to be correct, as shown in this statement, and that the cash balance in the First and Merchants National Bank, Richmond, Virginia, both at the beginning and end of this period of time, have been verified by statements from that bank.

The books and records in the business office of the Society are properly and efficiently kept in order, and the system now in use will answer all requirements and give such information as may be desired.

I. C. HARRISON,  
WRIGHT CLARKSON,  
*Auditing Committee.*

### Financial Report from October 1, 1928, to September 30, 1929

October 17, 1929.

TO THE OFFICERS MEDICAL SOCIETY OF VIRGINIA,  
RICHMOND, VIRGINIA.

GENTLEMEN:

We have made an audit of the financial records of the Medical Society of Virginia, Richmond, Virginia, for the fiscal year from October 1, 1928, to September 30, 1929. Our report on this work is embraced in the statements enumerated below, together with the related comments following:

#### Exhibits

- "A" Balance Sheet.
- "B" Receipts and Disbursements—General Fund.
- "C" Receipts and Disbursements—Legal Defense Fund.

#### Comments

##### Financial Position:

The financial condition of the Society at September 30, 1929, is set forth in Exhibit "A," a summary of which appears as follows:

##### General Fund:

Cash on Deposit	\$ 3,626.58	
Accounts Receivable	2,865.95	
		\$ 6,492.53
Less: Accounts Payable	763.94	
Net Worth—General Fund		\$ 5,728.59

##### Legal Defense Fund:

Cash on Deposit	\$ 2,084.84	
Investments—Bonds	6,500.00	
		8,584.84
Total Net Worth		\$14,313.43

#### Results of Operations

(Receipts and Disbursements Basis)

The cash receipts and disbursements for the fiscal year from October 1, 1928, to September 30, 1929, are detailed in Exhibits "B" and "C" for the General Fund and Legal Defense Fund, respectively. A summary of these transactions appears as follows:

##### General Fund:

Receipts—Medical Monthly	\$10,967.72
Receipts—Medical Society	5,174.67
Total Cash Receipts	\$16,142.39

Disbursements—Med. Mo. ---\$10,986.08  
Disbursements—Med. Soc. --- 5,275.31

Total Cash Disbursements----- 16,261.39

Disbursements in excess of receipts-- \$ 119.00

##### Legal Defense Fund:

Receipts—For year ----- \$ 888.74  
Disbursements—For year ----- 955.25

Disbursements in excess of receipts--- \$ 66.51

#### Scope of Audit

CASH RECEIPTS, as recorded, were found to have been properly deposited in The First & Merchants National Bank. Disbursements were by checks, which were audited in detail as to signature, endorsements and purpose of expenditure. Balances on deposit at September 30, 1929, were confirmed by certificate from bank.

ACCOUNTS RECEIVABLE, as stated on the balance sheet, are shown as per office records and without direct verification with debtors. Amounts due by members of the Society for annual dues prior to 1929, have not been included in the balance sheet, it appearing that the amount which will be realized from this source is nominal.

INVESTMENTS of the Legal Defense Fund represented by bonds and real estate note in the total amount of \$6,500.00, were verified by inspection, and are contained in safety deposit box at First & Merchants National Bank. Income thereon for the year was properly accounted for.

ACCOUNTS PAYABLE, \$763.94, represent September, 1929, expenses, which were paid prior to the completion of our audit. The Secretary-Treasurer certified to us that these represent all known liabilities of the Society at September 30, 1929.

INSURANCE IN FORCE was found as follows: Surety Bond—Secretary-Treasurer, \$3,000.00; Fire Insurance—office furniture and fixtures, \$1,000.00.

The financial records are kept on a receipt and disbursement basis and consist of cash receipts and disbursement book, membership register, non-member subscription register, and advertising clientele record. These records were examined in sufficient detail to enable us to rely on the accuracy of the results shown in this report.

Respectfully submitted,

A. M. PULLEN & Co.,  
*Certified Public Accountants.*

#### Balance Sheet—September 30, 1929

##### Exhibit "A"

##### ASSETS

##### General Fund:

##### Cash:

On Deposit—First & Merchants Natl. Bank (Ex. "B") ----- \$ 3,626.58

Due from Members—1929 Annual Dues (373 at \$5.00)--- 1,865.00

On Deposit—Post office (for postage) ----- 7.12

##### Accounts Receivable:

For halftones----- \$106.55

For advertising -- \$68.28

For Medical Monthly ----- 19.00

993 83

\$ 6,492.53



Forwarded -----	\$ 6,492.53
Legal Defense Fund:	
Cash:	
On Deposit—(Ex. "C").	
First & Merchants Natl.	
Bank (Svgs. Acct.)-----	\$ 2,084.84
First Mortgage	
Bonds (6%) --	\$5,000.00
First Mortgage	
R. E. Note	
(6%) -----	1,500.00
	<u>6,500.00</u>
	8,584.84
Total Assets -----	\$15,077.37

## LIABILITIES

Accounts Payable—(General Fund):	
For preparation of	
Medical Journal,	
September, 1929,	
issue -----	\$ 667.32
For Miscellaneous	
Expenses -----	96.62
	<u>\$ 763.94</u>
Net Worth:	
General Fund ----	\$5,728.59
Legal Defense Fund	8,584.84
	<u>14,313.43</u>
Total Liabilities and Net Worth-----	\$15,077.37

NOTE:—This Balance Sheet does not include a deposit of \$300.00 in the Savings Department of the First & Merchants Natl. Bank for the Committee on Post-Graduate Study.

Receipts and Disbursements—General Fund  
For Fiscal Year, October 1, 1928, to September 30, 1929

## Exhibit "B"

## RECEIPTS

Virginia Medical Monthly:	
Advertising -----	\$6,870.18
Subscriptions:	
Non-	
Members --\$	373.60
Members -	3,512.46
	<u>3,886.06</u>
Interest on bank balance -----	68.09
Cuts & electros-----	141.64
Miscellaneous -----	1.75
	<u>Total Medical Monthly--</u>
	\$10,967.72
Medical Society of Virginia:	
Dues:	
Members --\$	8,409.82
Less:	
To Medical	
Monthly -	3,512.46
	<u>\$4,897.36</u>
Interest on bank balance -----	68.09
Magazine subscriptions (1928-1929)-	181.72
Miscellaneous -----	27.50
	<u>Total—Medical Society---</u>
	5,174.67
Total Receipts -----	\$16,142.39
Balance—October 1, 1928----	3,745.58
	<u>Total Receipts and Balance-----</u>
	\$19,887.97

## DISBURSEMENTS

## Virginia Medical Monthly:

Salaries:	
Secretary-	
Treasurer--	\$1,800.00
Clerical	
Assistance	554.17
	<u>\$2,354.17</u>
Preparation of Journal -----	7,717.58
Postage -----	298.25
Rent, fuel, janitor and telephone----	278.09
Journal Envelopes (year's supply) --	128.92
Miscellaneous -----	209.07

Total—Medical Monthly-- \$10,986.08

## Medical Society of Virginia:

Salaries:	
Secretary --\$	1,800.00
Clerical	
Assistance	554.16
	<u>\$2,354.16</u>
Postage -----	306.00
Rent, Fuel, Janitor and Telephone --	280.44
Reporting Meetings--	164.11
Expenses—Officers & Meetings -----	117.98
Stationery, Office Supplies & miscellaneous -----	279.42
Magazine Subscriptions (1929) -----	38.47
Programs for Annual Meeting ----	85.00
Attorney's Fee—Retainer -----	100.00
Commission on Scientific Work -----	92.23
Walter Reed Commission -----	507.50
Ephraim McDowell Memorial (in full)	150.00
Commission on Post-Graduate Study --	300.00
Commission on History of Medicine--	500.00

Total—Medical Society--- 5,275.31

Total Disbursements--- \$16,261.39  
Balance—September 30, 1929  
(Exhibit "A") ----- 3,626.58

Total Disbursements and Balance----- \$19,887.97

Receipts and Disbursements  
Legal Defense Fund

For Fiscal Year, October 1, 1928, to September 30, 1929

## Exhibit "C"

## RECEIPTS

Dues from Members -----	\$ 474.29
Interest on Bonds -----	323.50
Interest on Real Estate Note--	67.50
Interest on Bank Balance-----	23.45
	<u>Total Receipts -----</u>
	\$ 888.74
Balance—October 1, 1928 -----	2,151.35

Total Receipts and Balance----- \$ 3,040.09

DISBURSEMENTS	
Committee Expenses -----	\$ 5.25
Attorneys' Fees—Defense Four Members -----	950.00
Total Disbursements -----	\$ 955.25
Balance—September 30, 1929 (Exhibit "A") -----	2,084.84
Total Disbursements and Balance-----	\$ 3,040.09

Following reading of the above reports, motion was made, seconded and carried that they be received and filed.

The minutes of the winter meeting of the Council were next read:

#### Minutes of Council Meeting

February 26, 1929

The Council of the Medical Society of Virginia held its mid-winter meeting in the Society's offices, in Richmond, February the 26, 1929, the President, Dr. J. Bolling Jones, of Petersburg, Va., presiding. Others in attendance were: Drs. R. D. Bates, E. C. S. Taliaferro, L. T. Price, Wright Clarkson, I. C. Harrison, and R. A. Bennett, councilors from the first to the sixth districts, respectively; Dr. Charles R. Grandy, president-elect, and Miss Agnes Edwards, secretary-treasurer. Dr. W. H. Goodwin, University, Va., was present in behalf of the Albemarle County and University of Virginia doctors, to discuss matters pertaining to our next annual meeting.

The President stated that he had appointed Drs. Harrison and Clarkson to audit books and asked for their report. Dr. Harrison said that the report audited was for only nine months, as it had been decided by the House of Delegates at our last meeting to have our financial year close September 30th, that we might have a better idea of our balance for the working year of the Society. The committee had found the books correct and in order, with a balance on hand, September 30, 1928, of \$12,396.93. Of this amount, \$3,745.58 was available for the general running expenses of the Society and \$8,651.35 belonged to the Legal Defense Fund. It was stated that \$6,500.00 of this latter fund is invested at 6 per cent. It was moved that this report be received and filed.

Dr. Grandy offered a motion, seconded by Dr. Taliaferro, that hereafter the books of the Society be closed September 30th, and audited by a public accountant. Carried.

Dr. Jones then took up reports of the various committees and asked first for that of the Committee on Legislation and Public Health. Dr. Lawrence T. Price, chairman, stated that one of the matters which had been brought to attention of his committee was a request from the Bureau of Legal Medicine of the American Medical Association, that we petition our Congressmen to oppose a continuance of the Sheppard-Towner Act. Knowing little of the work which had been done in this State as a result of this Act, he referred the letters to Dr. Ennion G. Williams, a member of his committee and also State Health Commissioner. He asked that Dr. Williams be given the privilege of the floor to tell something of the attitude of Virginia toward this Act.

Dr. Williams told briefly of the provisions of the Sheppard-Towner Act and of the work which had been done in Virginia with the \$25,000.00 given by the Federal Government for this purpose. He stated

that this matter was discussed at the last meeting of the American Public Health Association and the majority of Southern State health officers seemed to favor a continuance of this Act.

Following Dr. Williams' talk, a motion was made and duly seconded, that the Council approve a continuance of the Sheppard-Towner Act as it has been conducted in Virginia for the past seven years. Carried.

Dr. Price asked for a ruling on a clause in Article I, Section 1, of the By-Laws, with regard to active membership, stating that this had been interpreted in two ways by some members of the Richmond Academy of Medicine who were opposed to an increase from \$4.00 to \$25.00 in annual dues in the Academy. He said that a number had asked if they would lose membership in the State and National Societies were they to resign from the Academy. By a vote of the Council, it was moved that the President give a ruling on this By-Law. He ruled that in view of the ambiguity of the wording of our By-Law, members who resigned from the Richmond Academy of Medicine, as stated by Dr. Price, councilor from the Third District, may remain active members of the State Society until the next meeting of the House of Delegates, at which time he requested that a ruling be made on this clause, though he felt every effort should be made to have them retain their membership in the Academy, as it was the intent of the Committee revising the By-Laws, last year, to have the county society the unit of membership. It was moved, seconded and carried that the Council sustain the ruling of the chair.

To expedite the work of the Council, it was moved and seconded that all future reports be limited to ten minutes. Carried.

The Committee on Publication and Program had nothing to report, so Dr. Goodwin, upon invitation, stated that it had been decided to have the formal opening of the new medical buildings of the University at the time of the State Society meeting in Charlottesville and they were anxious to arrange a program incident to this event that members of the Society might attend and yet not have the exercises conflict with the regular program of the Society. In view of this, motion was made and seconded that the Program Committee be requested to turn the opening night of the Charlottesville meeting over to the local committee in conjunction with the President of the State Society. Carried.

October 22, 23, and 24 were selected as dates of the 1929 meeting.

Letters were read from Dr. John S. Horsley, Jr., Chairman of the Committee on Scientific Work and Clinics, and Dr. John O. Boyd, chairman of the Committee on Medical Economics, stating what had been done by their committees.

It was ordered that both of these reports be received and filed.

It being stated that there were no funds with which to prosecute irregular practitioners, motion was made by Dr. Harrison, and seconded that the Society appropriate the sum of \$500.00, or as much thereof as necessary, for the enforcement of the Medical Practice Act, this to be expended by the State Board of Medical Examiners when bills are approved by the President of the Society and Secretary of the State Board of Medical Examiners. Carried.

Dr. Price said that often matters arose in regard to enforcement of the Medical Practice Act and other work of the Society in which a legal opinion was needed and he made a motion, which was seconded, that the amount of \$200.00 or as much thereof as necessary be appropriated as a retainer's fee, the



attorney to be selected by the President of the Society and Chairman of the Committee on Legislation and Public Health, the attorney to reside in the city of Richmond, so as to be convenient to the Society's offices. Carried.

Reports in the form of letters were read from the chairman of the following committees, showing that they were at work, although they had no special matters to bring to the attention of the Council:

Medical Education and Hospitals—Dr. J. A. Hodges, chairman.

Maternal Welfare—Dr. Greer Baughman, chairman. Memorial to Dr. Ephraim McDowell—Dr. E. P. Tompkins, chairman.

Cancer Education—Dr. J. Shelton Horsley, chairman.

History of Medicine in Virginia—Dr. Wyndham B. Blanton, chairman.

It was ordered that these reports be received and filed.

The other committees had nothing to report at this time.

Dr. Jones announced that he had been advised by Dr. M. L. Anderson that he would be unable to serve as a member of the Committee on Child Welfare, and that he would appoint Dr. W. P. Jackson, of Roanoke, as chairman of this committee, and Dr. A. T. Finch, of Chase City, as a member in the place of Dr. Anderson.

Dr. Price said that Dr. J. Shelton Horsley, in his presidential address in 1927, had made a recommendation which he felt should have the consideration of the council, viz., that a joint meeting be held every few years of the doctors, dentists, and pharmacists, to discuss problems of common interest to these allied professions. He suggested that the President appoint some one from this Society to confer with like committees from the other associations and make a report at the next meeting of the House of Delegates of our Society. The President appointed Dr. Lawrence T. Price, a committee of one to look after this matter.

Upon inquiry from the Secretary, Miss Edwards was authorized to arrange for proper stenographic assistance for the business and scientific sessions for the Charlottesville meeting.

A statement being made that we have a member engaged in work in the foreign missionary field, it was moved, seconded and carried that the dues of any member engaged in foreign missionary work be remitted.

It was suggested that a resolution adopted by the Division Superintendents of Schools, at their meeting last fall, be referred to the Committee on Child Welfare for their consideration.

The President appointed Dr. E. C. S. Taliaferro, of Norfolk, as one of the three delegates to the American Medical Association, to fill the vacancy caused by the death of Dr. Murat Willis.

There being no further business, the Council adjourned.

AGNES V. EDWARDS, *Secretary*.

Following reading of this report, Dr. I. C. Harrison stated that the State Board of Medical Examiners had not used the appropriation allowed them.

It was ordered that this report be received and filed.

A report from our delegates to the American Medical Association was presented by Dr. Southgate Leigh:

#### Report of Delegates to the American Medical Association

Your delegates, being anxious to bring about a closer contact between the doctors of Virginia and their great National Organization, would like to make a detailed report of the multitudinous proceedings at the Portland meeting, but such a report would be too voluminous. We shall content ourselves, therefore, in bringing to your attention as many of the essentials as time will permit.

As stated in a former report, the Association is a most democratic organization, being completely under the control of the various State Societies through their elected delegates.

There is no membership fee, the support of the organization coming from subscriptions to the JOURNAL, which carry with it fellowship in the body and from ethical advertisements. The fact that the cost of the enormous amount of productive work being done for the profession is taken care of in that way is evidence of its splendid management.

This work is growing so rapidly as to require increased funds, which will be supplied in part, at least, by an increase in subscription price of the JOURNAL to not more than \$8.00 a year.

A large addition to the present quarters, or building of a larger and more appropriate home, is in contemplation.

President Thayer called attention to the multiplicity of medical meetings and suggested the advisability of developing post-graduate work at the various State meetings. He also stressed the necessity of hospital standardizing by the American Medical Association, and the importance of arranging to bring the Index Medicus back to its former standard.

It may interest our members to know the exact words used by him in criticising the National Government: "These are difficult and anxious days in the world at large, critical days, perhaps, in the history of parliamentary government, of free government by the majority. Here in America we have gone along for upwards of one hundred and fifty years with what we have believed to be a rather happily devised free government, a government by the majority, tempered by safeguards allowing a fair measure of local independence. On this model has been formed the constitution of our organization. Government by the majority is wholesome and beneficent, so long as it is tolerant and considerate. The strength of our government in the past has been in its elasticity and in that it has allowed much latitude in local self-control, in that it has recognized the right of local communities to settle those questions which relate to their everyday life.

"But there are lengths beyond which a majority may not go. When in a country like ours, the national government attempts to legislate for the whole country as to what we may or may not eat or drink, as to how we may dress, as to our religious beliefs, or as to what we may or may not read, this is to interfere with rights that are sacred to every English speaking man. This is no longer republican government; it is tyranny." \* \* \*

"The Congress of the United States is not made up of men who desire to establish a tyranny. Far from it! But in certain ways, against the warnings of wise and temperate men, such as the Chief Justice, they have passed laws which are intemperate, meddlesome, and may justly be regarded as tyrannical. As a Nation, we have of recent years set a rather sorry example in the passage of inconsiderate, ill-considered and intolerant prescriptions and prohibi-

tions, prescriptions and prohibitions some of which may be proper enough in certain localities where they represent the desire of the majority, but which, when applied to the country at large, interfere with the personal liberties of the people. Such laws cannot be enforced; they defeat their own ends. Intolerance is the most fatal enemy of liberty."

He explained afterward that he had no intention of stirring up any political discussion, such as took place in the newspapers of the country.

President-elect Harris referred to the discussions among the laity and the secular press in regard to the cost of medical care, which is being investigated most thoroughly by a committee of which Dr. Wilbur is chairman. It has already developed that the amount of the doctor's fees has but little to do with increased costs.

Doctor Harris called attention to a plan devised by him and previously published in the JOURNAL, in which the local medical society shall organize a pay clinic where those unable to pay the regular fees may be looked after in a systematic and thorough manner.

In the report of the Board of Trustees, it was shown that *Hygeia* is now making a small profit, about \$8,000 a year; that it goes to practically every library in the United States; reaches about 15,000 school teachers, and serves a fundamental purpose in the education of the coming generation in the field of health.

Its contents, including articles and illustrations, have been maintained at a high standard and varied so as to cover every field of health interest. The members of the legislative bodies of five States now receive the magazine regularly through activities of medical organizations in those States. A special department, established during the year, devoted to the teachers' interests in health, has received general commendation from those it is planned to reach.

The Woman's Auxiliary has done notable service in extending the circulation of *Hygeia*. The one cause for lament at present is the apparent lack of individual support by the fellows of the American Medical Association. Practically every physician subscribes for publications for his office table, and *Hygeia* is adapted particularly to such use. Nevertheless, the circulation of *Hygeia* directed to physicians includes only some 16,000 instead of 75,000 who should be regular subscribers.

The periodical is now self-sustaining. By a more united support on the part of the American medical profession, *Hygeia* can increase its income both from subscriptions and from advertising, and thus be enabled to spread its information and its influence throughout the nation. The subscription list of *Hygeia* on December 31, 1928, carried 75,163 names. Seventy-three per cent of *Hygeia* subscriptions are laymen, and 27 per cent are physicians.

Radio health talks are given regularly from headquarters and copies of 26 of these talks are offered to physicians without cost.

The Council of Physical Therapy has made substantial progress in its task of placing physical therapy on a sound basis as evidenced by the increasingly conservative and scientific attitude of manufacturers and by the developed interests of competent, conservative physicians in the therapeutic use of physical energies. The Council attempts to supply the medical profession unbiased information in the field of physical therapy and biophysics, fosters investigation of fundamental problems and examines and reports on apparatus. Information is supplied through the columns of the JOURNAL, through correspondence, by radio talks and the

papers presented before medical and other scientific societies.

The Council of Physical Therapy comprises physiotherapists, physiologists, and pathologists and clinicians, which makes possible a thorough consideration of all phases of physical therapy and biophysics.

The scientific use of mechanical, radiant and electrical energy in the diagnosis and treatment of disease is comparatively new. There is in physical therapy much that must be eliminated before sound progress can be made. For that reason a large part of the Council's activities must necessarily be educational. The Council has endeavored to promote sound physical therapy and to explode unscientific and pernicious theories as to the biologic effect and therapeutic merit of physical energies. A steadily increasing correspondence bears witness to the fact that the physicians of the country are looking to the Council for guidance. It is believed that the impartial information disseminated among the profession will have influence in promoting conservative and proper use of physical therapy.

"Further work for the establishment of physical therapy departments in hospitals will be undertaken. The Council will then publish a report embodying suggestions as to what the minimum equipment should be to function effectively as a place where adjuvant treatment to proper medical and surgical care may be given. It is now generally accepted that proper post-operative physical therapy treatment in certain conditions may materially decrease the period of hospitalization; therefore, such hospital departments under the direction of competent physicians would probably make possible the treatment of a greater number of patients annually."

The Bureau of Legal Medicine and Legislation has been active during the year. It reports progress in its attempt to permit physicians to deduct their professional travelling expenses from their income tax.

The prohibition department promised some relief in the forms for prescribing, but instead, made them more cumbersome.

Plans are being made to protect the public from harmful cosmetics.

Various proposed measures, harmful to the profession, have been either delayed in congressional committees or defeated.

Secretary-Manager West reported an increase of 2,000 in memberships and about the same number in fellowships; Virginia is still behind in county organization.

To quote Dr. West: "The medical profession, in common with all other groups of society, is feeling the strain of a great transitional stage in the life of our country. In some ways physicians are being subjected to greater pressure and stress than any other group. The tendency of government toward paternalism, the restrictions imposed by legislative enactments and by bureaucratic regulations, the establishment of great funds and foundations ostensibly benevolent in character interested primarily in medical care, the trend of modern business with its installment plans and high pressure salesmanship, the propagation of half-baked theories, semi-truths, and positive misinformation through the public press and even through periodicals designed for physicians, a flood of loose talk without regard for fact, and, it may be, the disposition on the part of a minor element of the profession to commercialize the practice of medicine and to depart from ideals and traditions, established through the ages, that have made possible the progress and achievements of scientific medicine—all these are factors in the situation that exists today in which the medical pro-



fession finds itself the object of much criticism that is not deserved, and the recipient of many suggestions for its conduct. Much of this may be helpful, but a great mass represents considerations which physicians know are impractical or even dangerous.

"There has never been a time when there was greater need for compact and efficient organization of the physicians of this country than exists now. Our plan of organization is comprehensive and, in most particulars, entirely sufficient if put into proper operation and carried out with reasonable efficiency. This cannot be done if the dissipation of effort and the conflict of interests occasioned by the existence of a multitudinous number of independent medical organizations are to be continued."

"There are problems arising out of more or less revolutionary conditions of the times that cannot be effectively solved except through the agency of organized medicine. There are others that will be solved only through the process of evolution, although efforts are constantly being made to deal with them by the application of revolutionary methods. There is a great need for well considered action on the part of a unified profession looking toward the solution of those problems that are susceptible of solution through human agency.

"The urgent demand of the time is for unified action and for expression through a great voice that will speak authoritatively for the entire profession of medicine in the several States and in the United States. This demand can be properly met through unity that is possible only as the profession is compactly organized."

The Council on Medical Education and Hospitals reported 72 class A and 2 class B schools. It has decided to drop all class C schools as not being worthy of consideration. All hospitals, suitable for the training of interns, are being investigated.

A special committee has prepared a statement which is being published in the JOURNAL, giving the "Essentials of an approved department of radiology and roentgenology."

It is interesting to note that five schools are now providing continuous sessions to enable students to graduate in three years, and three others are considering the plan.

A resolution was adopted by the delegates urging the medical schools to pay more attention and give more time to the teaching of obstetrics.

The policy of the Red Cross to provide nurses for irregulars under certain conditions was disapproved.

The proposed increase in tariff on surgical and medical supplies was condemned.

Your delegates cannot close this report without calling attention to the splendid work, extending over several years, of the Council on Scientific Assembly, headed by our Dr. J. Shelton Horsley. The work of the sections has rapidly increased in efficiency and importance, with every facility for comfort and convenience. The scientific exhibits are really marvelous in their scope and effectiveness.

Too much credit cannot be given the Council for its efforts in establishing diagnostic clinics and lectures, which were most attractive and popular at the Minneapolis and Portland meetings.

The profession of Virginia should know of the splendid results of Dr. Horsley's untiring efforts, and we take pleasure in recording them here.

Portland looked after the meeting in a handsome way, and made everybody happy. The next meeting will be held in Detroit.

For the first time in many years, this Society

was honored by having one of its members elected to the Presidency, Dr. William Gerry Morgan, of Washington, D. C.

We are further greatly honored by having this distinguished President-elect with us in attendance on this meeting of our Society. Dr. Morgan is a firm believer in organized medicine. Living in Washington, in close contact with government officials and congressmen, he is alive to many of the dangers that are threatening the profession. We look for great things from his administration, and bespeak for him the active and hearty cooperation of the doctors of Virginia.

Respectfully,  
J. W. PRESTON,  
FRED M. HODGES,  
SOUTHGATE LEIGH,  
*Delegates.*

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This report was ordered received and filed.

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Dr. J. Allison Hodges asked that the privilege of the floor be extended Dr. William Gerry Morgan, our distinguished member, now President-Elect of the American Medical Association.

Dr. Morgan, in a short talk, made a plea for a closer contact between the American Medical Association and the bedside doctors of the country, stating that he is a bedside doctor and makes rounds as do many of our members. He said that the duties of the medical man are first his allegiance to his family, next to the individual patient whom he serves, and third, to his county and State societies, and, in this section, to the Southern Medical Association. His duty to these will be better if he gives allegiance to the parent organization of the country—the American Medical Association, which is a highly democratic organization. He at first felt that he had no part in the A. M. A., but he now knows that this is the wrong attitude, and feels that if he has an opportunity to bring the work of the A. M. A. closer to medical men, he will have done a sufficient work as president of that organization.

Dr. Morgan said that the A. M. A. is never dictatorial. It takes the attitude of an affectionate watchful parent, ready to be of service when called upon. There seems to be a little jealousy on the part of societies toward the A. M. A. That association can give help to local problems which we cannot work out. The individual doctor's burden can be lightened if he backs the A. M. A., as he can help make it what he pleases.

He further said that a State is influential in the House of Delegates of the A. M. A. in proportion to the type of man it sends. At the end of two years, a delegate has usually just found the work in which he can be of greatest influence. Dr. Morgan stated that Virginia is among the States which has the greatest influence in the House of Delegates of the A. M. A., because we let our representatives return year after year. He brought out that Dr. Southgate Leigh, our delegate who has been returned for a number of terms, has had positions on some of the most important committees, as he is always there and can be counted on for the right side in any measures coming up. In closing, Dr. Morgan said that Virginia is to be congratulated upon having such a representative as Dr. Leigh to do the bidding of the home society.

The next order of business was the reports of Standing Committees.

#### Report of Committee on Scientific Work and Clinics

TO THE MEMBERS OF THE HOUSE OF DELEGATES OF THE MEDICAL SOCIETY OF VIRGINIA:

The Committee on Scientific Work and Clinics offers the following report:

During the year 1928-29 letters were written to the Chief of Staff of each hospital and to the President of each County and District Society in Virginia, inviting them and their colleagues to present Scientific Exhibits at the sixtieth annual meeting of this Society in Charlottesville. The types of exhibits were suggested in the letters, and a special request was made for a display of books, manuscripts and instruments of historical scientific interest.

Our committee is pleased to report the following program for Clinics and Scientific Exhibits:

##### CLINICS

*Mental Diseases*—Dr. J. S. DeJarnette, Staunton; Dr. J. H. Bell, Lynchburg; Dr. G. A. Wright, Marion; Dr. Hugh C. Henry, Petersburg; Dr. G. W. Brown; Williamsburg; Dr. J. K. Hall, Richmond.

*Diseases of Ear, Nose, and Throat*—Dr. E. G. Gill, Roanoke.

*Neurosurgery*—Dr. C. C. Coleman, Richmond.

*General Surgery*—Dr. Stuart McGuire, Richmond.

*Pulmonary Tuberculosis*—Dr. W. E. Brown and Dr. F. B. Stafford, Blue Ridge.

*Non-Tuberculous Pulmonary Diseases*—Dr. Fletcher Wright, Petersburg

*Cardiovascular Diseases*—Dr. W. B. Porter, Richmond.

*Gastro-Intestinal Diseases*—Dr. W. B. Martin, Norfolk.

*Pediatrics*—Dr. Frank D. Wilson, Norfolk.

##### SCIENTIFIC EXHIBITS

1. *American Medical Association Headquarters*, Chicago.
2. *American Social Hygiene Association*, New York.
3. *Commonwealth of Virginia, Health Department Laboratories*.
4. *Medical College of Virginia*, Richmond.  
Departments of Pathology, Bacteriology, and Neurological Surgery.
5. *McGuire Clinic and St. Luke's Hospital*, Richmond.  
Medical Department and Pathological Department.
6. *St. Elizabeth's Hospital*, Richmond.  
Departments of Urology and Surgery.
7. *University of Virginia*.  
Department of Anatomy.
8. *United States Naval Hospital*, Norfolk.  
Training of Hospital Corpsmen for the Navy.
9. *Virginia School for the Deaf and the Blind*, Staunton.
10. *Historical Exhibit*  
Dr. E. L. Kendig, Victoria.  
Dr. Joseph L. Miller, Thomas, W. Va.  
Dr. J. K. Hall, Richmond.  
Dr. E. P. Tompkins, Lexington.

The committee has called on the Society for all of the \$100.00 appropriated for its work and recommends that the appropriation be increased to \$200.00 for the coming year, as the local committee in Charlottesville had to make up the deficit for this meeting.

The committee wishes to offer the suggestion that those who succeed us will attempt further to arouse interest and enthusiasm in these portions of the program, so that from year to year marked improvement may be noted in the quality and quantity of the exhibits.

Respectfully submitted,

JOHN S. HORSLEY, JR., *Chairman*.

J. EDWIN WOOD, JR.,

CHARLES PHILLIPS,

Motion was made, seconded and carried that this report be received and filed.

#### Report of the Committee on Legislation and Public Health

There has been no occasion to call a meeting of the committee for any purpose, and the only activity of this committee was the appearance before the Committee on Interstate and Foreign Commerce, of the House of Representatives, in Washington, D. C., by Dr. Ennion G. Williams, a member of this committee, advocating the continuance of the Sheppard-Towner Bill, relating to Maternal and Child Welfare, which act terminated June 1, 1929.

The Committee did not succeed in getting a recommendation out, before the meeting of Congress adjourned.

Respectfully submitted,

LAWRENCE T. PRICE, *Chairman*.

It was ordered that this report be received and filed.

#### Report of the Medical Economics Committee

MR. PRESIDENT AND MEMBERS OF THE HOUSE OF DELEGATES:

At the meeting of the Medical Society of Virginia, in Danville, in 1928, the duties of this committee were changed, to a large degree.

You will recall that the Society went on record as discontinuing legal defense in malpractice suits against its members in the future, but, of course, we are obligated to assist in the defense of cases that were pending before December 31, 1928, and where the act was committed prior to the action taken by the Society in October, 1928.

Being guided by the suggestions and wishes of the Society, this committee made plans to endeavor to get every member of the Society to take out Medical Defense Insurance. We first obtained the best rates for a standard policy, which are as follows:

(1) The present rate of \$15.00 for the usual \$5,000.00—\$15,000.00 indemnity protection is continued for individual policies.

(2) For county and city societies, group policies providing above indemnity are offered for \$13.50 a year, provided group is not less than 15 and that it must have at least 50 per cent of the county membership.

(3) As soon as the number of physicians insured by this company, including individual policyholders and those now in groups, is 1,001, the rate for all will be reduced to \$12.50 annually.

We then wrote a letter to the members of the Medical Society of Virginia, in which we informed them that the Society had decided to discontinue legal defense after December 31, 1928. We also tried to impress upon the members the necessity for carrying indemnity insurance. The response was not



as great as we had hoped for. The Secretary also enclosed cards in her correspondence with members during the year in which she endeavored to impress upon them the advantages of carrying a policy.

A second letter was written over the signature of your committee, to members not carrying insurance, in a certain district of the State, to which there was a fair response. This letter was written by an agent for the company and approved by the chairman of this committee.

We have expended \$950.00 paid in attorneys' fees during the past year. Two cases in Richmond, Va., one case in Roanoke, Va., and one case in Norfolk, Va.

There is still one case pending for which your committee has agreed to pay \$300 in attorneys' fees after the case is settled.

As the legal defense was not discontinued until the 31st of December, 1928, there may be other cases, to arise which can demand assistance from the Society until December 31, 1929.

The committee would like to suggest that efforts be made during the coming year to get members who do not carry insurance to protect themselves.

Respectfully submitted,

JOHN O. BOYD, *Chairman*.  
P. W. HOWLE,  
M. H. HARRIS,

Following the presentation of this report, Mr. G. H. Winfrey, a representative of the Aetna Casualty and Insurance Company, was given a few minutes in which to tell of a plan for indemnity insurance which had been offered by the Aetna Company and which had been endorsed by the Medical Economics Committee. He stated that as soon as 1,001 of our members are insured with his company, the rate for the \$5,000/\$15,000 protection will automatically drop from \$15.00 to \$12.50 per member a year. Approximately seven hundred of our members are now insured with this company. He said that twelve suits were brought against members of our Society during the past year for alleged civil malpractice, which fact indicates the urgency for this protection. The medical societies of North Carolina and West Virginia have already insured a sufficient number to secure the special rate offered by the Aetna.

In answer to inquiry, Mr. Winfrey stated this special rate does not cover those using X-ray therapy and radium, but it would be a saving of five to fifteen dollars yearly to a large proportion of our membership doing ethical contract practice who now pay an extra premium because of this fact. He further said that the Aetna policy includes protection against suits arising from acts of physicians as members of lunacy commissions, which protection is not given by other companies. He said that to secure the reduced rate, our members should concentrate in the Aetna.

After the explanation of the group plan of insurance by the Aetna Company, Dr. J. Allison Hodges moved the adoption of the plan suggested by Mr. Winfrey and Dr. Boyd's report. Seconded and carried.

#### Report of Committee on Medical Education and Hospitals

Your committee, after surveying the field of Medical Education and Hospitals in the State, has decided to offer a plan for Graduate Medical Education, as this subject has been recently under consideration by the Council and the Post-Graduate Study Special Committee.

Our aim has been to formulate this plan so that it could be under the direction of one or more standing committees, as outlined by the Constitution, and thus be made more stable and continuous.

The following plan for continuous Medical Education by Extension Courses in the State is susceptible of modifications, for the whole scheme is still in its initial and evolutionary stages, and in certain localities may have to be changed in a measure to meet existing conditions, all of which will be considered later.

The essential basic features, incorporated more fully in the recommendations herewith submitted, are:

1. That the State Society shall be the sponsor and connecting link between the different units;
2. That the component Societies, including district and group units, shall be the vitalizing factors;
3. That the Councilor in each Councilor District shall be advisor, and one of the local directors;
4. That the regional hospitals in each district shall be requested by the local component Societies to aid in the work;
5. That the Doctors' Educational and Clinical Bureau, when established, shall act as a supply and exchange station, as well as a professional clearing-house for correlation of courses and co-ordination generally of the extension work.

#### RECOMMENDATIONS FOR INITIATING EDUCATIONAL AND CLINICAL COURSES FOR MEDICAL PRACTITIONERS.

1. *Steering Committee*—To organize this series of Graduate Educational and Clinical Courses for Medical Practitioners by the State Society, there shall be formed a Steering Committee, representing the Medical Society of Virginia, and composed of the members of the Committee on Scientific Work and Clinics and the Committee on Medical Education and Hospitals, with the President-elect as chairman, who, during his term of office, shall be responsible for the initiation and execution of the program.

It shall be within the province of this committee, as so merged, to select the members of the "Educational and Clinical Bureau for Medical Practitioners" hereafter named, and subsequently to act jointly with this Bureau as an Advisory Board.

2. *Educational and Clinical Bureau for Medical Practitioners*—This Bureau shall consist of seven members, selected as follows: Three physicians from the Medical Society of Virginia, one of whom shall be the President-elect, one from the Medical Department of the University of Virginia, one from the Medical Faculty of the Medical College of Virginia, one physician from the State Board of Health, and another member who may be either a physician or layman, whose duty it shall be to act as Executive Secretary of the Bureau, and whose specific duties shall be formulated by the Bureau and Advisory Board.

Duties of the Bureau: It shall be the duty of the Bureau, in conjunction with the Advisory Board, to formulate such rules and regulations as may seem necessary to put into effect the desire of the State Society to inaugurate a plan for the continuous medical education of its members in their respective councilor districts at periodical meetings, at which Diagnostic Clinics, Clinical Lectures, Current Medical Reviews, etc., may be given, and also to provide for all Clinics for the annual sessions of the State Society.

3. *Medical Colleges in the State*—In the inauguration of this scheme of instruction, it is suggested that the Bureau request the two Medical Colleges in the State to continue their present post-graduate courses as scheduled, and, as far as practicable, act

in co-operation with the Bureau in future post-graduate education and clinics.

4. *Interchange of Clinical Teachers*—It is suggested to the Bureau that, wherever feasible, an interchange of Clinicians from one Society or College, or hospital, to another during these clinical meetings would be advisable in stimulating interest and securing co-operation; but this provision shall not eliminate clinicians outside the State, if deemed advisable.

5. *The Use of Strategically Located Hospitals as Bases for the First Educational and Clinical Meetings*—It is believed that in the beginning of this work, these courses can be organized better in existing hospitals in the different Councilor districts of the State than elsewhere, and their selection by the component societies and their designation by the Bureau will relieve the selected hospitals of the criticism of self-exploitation.

6. *Assignment of Dates of Educational and Clinical Courses*—The dates, subjects selected, etc., of these courses shall be left to the wishes of the members of the component societies in the sections designated, but the Bureau should be informed through the local councilor, acting as one of the directors, so as to co-operate and co-ordinate them in every way possible, and thus prevent possible conflicts.

7. *The Health Department of the State*—This public service can be utilized through the aid of the Bureau in ascertaining for any district the seasonal incidence of certain diseases, or the greatest mortality prevailing in any class of disease at any given time, so as to provide for the latest medical information, if desired.

8. *Use of the Society's Journal*—A special section of the VIRGINIA MEDICAL MONTHLY shall be devoted regularly to this feature of Medical Education, and the schedules, proceedings, etc., of the clinical courses shall be recorded regularly.

9. *Budget*—In order to make this method available for practical use during the coming year, it is suggested that a budget of two hundred (\$200) dollars, or so much thereof as may be necessary, be appropriated from the funds of the Society for 1930, in addition to the three hundred (\$300) dollars formerly appropriated, but not yet used, for 1929, with the understanding and agreement, that this sum shall also include all expenses incurred for clinics at the annual meetings of the Society during this period.

10. *Fees*—In the future, when the practicability and utility of this method of regional group education for medical practitioners has been demonstrated, and longer courses can be arranged, it is suggested that those availing themselves of the facilities provided, shall pay a small fee to cover the actual expenses of clinicians, laboratories, etc.

11. *Co-operation*—Co-operation is the keynote of this undertaking, and the development of this entire program, both as an initiatory method in continuous medical education, and as a permanently justified local means of self-education for medical practitioners, depends upon the interest, enthusiasm and co-operation of the component societies and their individual members.

It is confidently believed that if this co-operation is heartily given, these and similar methods must and will prove successful, and we will not only have good doctors, but we will keep them good.

J. ALLISON HODGES, *Chairman*.

It was decided to defer action on this report until after presentation of Dr. Preston's report, from the Special Committee on Post-Graduate Study, and to consider both reports at the same time.

#### Report of Special Committee on Post-Graduate Work

Your committee wishes to report that, since under the provision of the new constitution matters pertaining to clinics are delegated to the standing committee on Scientific Work and Clinics, and those pertaining to education, to the standing committee on Education and Hospitals, it has seemed proper to limit its activities mainly to further efforts directed to ascertaining what has been accomplished in other States in the way of development of similar post-graduate work and a further endeavor to determine what would be most acceptable and best for Virginia.

Your committee now wishes particularly to call attention to the preliminary report of Mr. Zehmer, of the Extension Department of the University, touching the matter of post-graduate work, which report was made at the request of your body and was printed in full in the September number of the VIRGINIA MEDICAL MONTHLY, page 403.

Combining a digest of Mr. Zehmer's report with the observation of your committee, as a basis for future and substantial development, we would recommend:

First. That looking to the permanent and substantial development of post-graduate work, our special committee be discharged, and the two standing committees, the one on Education and Hospitals, and the other on Scientific Work and Clinics, be re-cast so that all work pertaining to education, including post-graduate work, be arranged as the duty of the one committee, making its title read "Committee on Education, Post-Graduate Work, and Clinics," and the duties of the other committee be made to include that of scientific work and hospitals, thereby grouping under the one all strictly educational matters, including post-graduate work, and under the other that of scientific work and hospitals. In the event this plan be not approved and it be desired to continue a special separate post-graduate committee, it is recommended that this committee be so constituted as to make the president-elect each year, chairman, thereby enabling him to become thoroughly familiar with the work prior to the undertaking of his duties as President and thus correlating the post-graduate work, general education work and society work, from year to year.

Second. That a special effort be made to co-ordinate the efforts of the Society in the matter of education and post-graduate work with the development of post-graduate facilities of our two medical schools and with the State Department of Health, to which end if need be additional clerical help be provided the Secretary of the Society, making it possible that her office, in a large measure, assume charge of publicity, mailing out programs, and follow-up work, in accordance with the section of Mr. Zehmer's report, dealing with "Importance of Attention to Details of Organization and Management." It is further recommended that the expense for this measure be met through such collections as may be made from enrollment fees and from such special budget as may be provided by the council, to be expended by the committee with the approval of the President. It is also further recommended that, in the event there be any question as to inviting clinicians from outside the State, the committee, with the approval of the President, be authorized to use its judgment in such matters, and to meet the expenses from the budget.

Third. That consideration be given to Mr. Zehmer's recommendation that a small fee be charged for enrollment in each course of lectures



or demonstrations, except in such cases as those which may be held under the direct auspices of individual organizations or as clinics at Society meetings.

Fourth. That an effort be made to conduct each month a column or page in the JOURNAL having to do with post-graduate work in some of its various forms, or, if it seem best, the publication of crisp serial articles having to do with current development of medicine.

Fifth. That special efforts be directed to stimulating attendance upon post-graduate work by an endeavor to provide facilities to supply upon request, didactic clinicians, lecturers, moving pictures, etc., to such component organizations of the State Society as might desire to put on programs, and that a roster be maintained in the Secretary's office of clinicians who may be available for such work.

Sixth. Recognizing that on account of geographical locations and for other reasons, the needs in different portions of the State differ, that the attention of the Councilor in each district be directed to the fact that the development of educational matters within his jurisdiction is primarily dependent upon his interest and his efforts, and that therefore each Councilor be encouraged to take an active part in the promotion of whatever plan would seem best for the development of the profession in his particular district.

Seventh. Further recognizing that in view of the fact that systematic home study in the matter of post-graduate work, in the beginning, would necessarily be experimental, in the event a suitable director should become available that the State Society lend its support and facilities in promotion of the undertaking.

Your committee wishes to acknowledge its indebtedness to Mr. Zehmer for his interest and assistance and to request that he continue his investigations and make a final report at such time as may best suit his convenience.

By way of summary, and in conclusion, your committee would state that in its opinion the most promising means of developing interest in post-graduate work would seem to be by experimenting with didactic lectures and clinics, particularly upon the first day's meeting of the State Society as a model, and in such councilor districts as may become interested, with the plan and purpose that the reading of journals and literature may be further stimulated; and particularly, that the attendance upon the courses given by our two medical schools may be generally popularized, and the schools encouraged to make these courses an important feature of their curricula, and to the further end that some systematic plan of home study and instruction be gradually evolved.

Respectfully submitted,

J. W. PRESTON, *Chairman*,  
J. C. FLIPPIN,  
MANFRED CALL,  
ENNION G. WILLIAMS,  
*Committee.*

Following the reports of these two committees, Dr. Clarkson made a motion, which was seconded, that Drs. Hodges and Preston confer and work out some plan which could be presented to the House at its next meeting as a joint report.

Dr. E. G. Williams, a member of Dr. Preston's committee, suggested that the Special Committee on Post-Graduate Study be abolished and the work of this committee be combined with that of the standing committee on Medical Education and Hospitals

Dr. Hodges asked to hear from Dr. William Gerry Morgan on these reports.

Dr. Morgan said that the reports of these committees seemed to him a very decided step forward. He said that it is one thing to provide facilities for post-graduate work and another thing to have them taken advantage of. If doctors in the United States would avail themselves of opportunities which now exist, there would be no need of additional facilities. The scheme of post-graduate instruction has to be sold to the doctors. When finally put into operation, it will be but a short time before other States will adopt the plan.

It was now stated that a motion was before the House. Dr. Clarkson's motion, which had been seconded, was restated and carried.

The President announced that Dr. J. A. White, chairman of the Membership Committee, would present his report before the general session that evening.

Dr. Garnett Nelson, chairman of the Ethics and Judiciary Committee, submitted a statement that there had been no meeting of his committee since the last meeting of the State Society. It was ordered that this report be received and filed.

#### Report of Committee on Child Welfare

##### TO THE HOUSE OF DELEGATES:

We, the members of the Child Welfare Committee of the Medical Society of Virginia, appointed by your President, Dr. J. Bolling Jones, wish to submit the following report of our activities during the past year.

Our first meeting was held in Richmond, Virginia, April 21, 1929, for the purpose of studying the work of the State Health Department on Child Health and giving such advice as seemed wise to us.

At our first meeting Dr. Mary E. Brydon briefly outlined the methods and results obtained until that time. She also presented the old and new plans as advocated by the Health Department for getting pre-school children physically fit for school. The essential difference in the two plans is that in the first case the examinations were made by the State Clinicians. Any recommendations for treatment were sent to the family physicians. The new plan advocates having the family physician make the examinations and his own recommendations. After comparing the two plans, the Committee felt rather strongly that the new plan was superior and therefore recommended that the old plan be discarded as rapidly as possible and the new plan be substituted as modified by the Child Welfare Committee and approved by the State Department of Health. The State Department of Health was requested to make a report at a subsequent meeting on results so far obtained with the new plan.

The second meeting was held September 15, 1929. At each of these meetings Dr. J. Bolling Jones, your President, and Dr. Mary E. Brydon, the Director of the Bureau of Child Health, were present.

At these meetings we first considered what we thought should be accepted as a standard of physical fitness for the child, both from the standpoint of health and his ability to make use of such educational opportunities as are offered to him. With this in mind, we, the Child Welfare Committee, by resolution, recommended the following standard of

physical fitness for children of the pre-school age:

- I. 1. Good nutrition
  - a. Not more than 10% below or 20% above average weight for height and age.
  - b. Firm musculature and subcutaneous tissue.
  - c. Hemoglobin not below 75% (Tallquist scale).
2. Eyes: 20/20 vision with no symptoms of eye strain—or corrected to 20/20 vision, with glasses if necessary, and with no organic lesion which impairs function.
3. Accurate hearing, with no malformation or chronic disease. (Ordinary conversational voice 20 feet).
4. Free nasal passages, absence of mouth breathing. (No adenoids).
5. Healthy throat—if tonsils are infected or are the causes of other defects, they should be removed.
6. Teeth reasonably clean, no exposed roots or unfilled cavities. (Preferably checked by dentist).
7. No glandular disturbance, such as tuberculous adenitis, hypertrophied thyroid, etc.
8. Fully compensating heart (rule out by exercise if suspicious), with no organic lesion.
9. No disease of the lungs; tuberculosis, bronchitis, asthma, etc.
10. No abdominal defect, as hernia, palpable spleen or enlarged liver.
11. No intestinal infestation, as parasites. (If suspicious send specimen to the State Laboratory).
12. No major orthopedic defects, erect posture. (All minor orthopedic defects corrected as flat foot, postural curvatures, etc.)
13. Skin and scalp free from parasitic and other infectious or serious condition. (If suspicious have specimen of blood sent to State Laboratory for Wassermann test).
14. Absence of organic or functional nervous disease.
15. Protection against smallpox, diphtheria, typhoid, and para-typhoid.

Realizing that in many cases it would be impossible to fulfil all the requirements of the standard, the committee adopted as a minimum standard of physical fitness to be used by the physicians, the Five Point Standard as recommended by the State Department of Health and State Department of Education That minimum standard is as follows:

II. "1. Vision, child reads line marked 20 on Snellen eye-testing chart at a distance of 20 feet (each eye tested separately), or has glasses which supply an equivalent degree of vision. 2. Hearing, child hears conversational voice at a distance of 20 feet (each ear tested separately). 3. Teeth, reasonably clean, no exposed roots or unfilled cavities (preferably checked by dentist). 4. Throat, child has no symptoms of trouble with tonsils and adenoids; not a mouth breather (preferably checked by physician). 5. Weight, child is not 10% below or 20% or more above weight."

A communication had been sent us from the Division of Superintendents of Schools, asking this committee to study the pre-school health work and to send them children physically fit. A response to that request was considered appropriate and the committee adopted the following resolution.

III. "Resolved that we appreciate the work done by the Division Superintendents' Association of Virginia, and their marked interest in the health of the children of the State of Virginia, as evidenced by their resolution. We heartily endorse the same

and desire to state that the physicians of the State of Virginia are not only interested in her children, but are willing and ready to do what they can for the advancement and furtherance of the above plans for securing healthy children."

The next question for our consideration was the problem of handling children in certain communities where there might be a rather large number of children whose parents were financially unable to employ a physician, particularly if there were relatively few physicians in those communities. After much deliberation, the committee passed the following resolution:

IV. "Resolved that we recommend to the Medical Society of Virginia, to the Association of Division Superintendents, to the Association of Teachers of the State of Virginia, and to the Parent-Teachers' Associations that in certain localities where the physicians are limited and where there are large numbers of school children unable to pay any fee for examination in pre-school child health work, these children with their parents be gathered together in groups in the physician's office or wherever he shall determine, and clinics be arranged in co-operation with the local physicians in nearby counties or districts to render the necessary assistance, and in case this cannot be done adequately, that the State Department of Health in Richmond be called upon for assistance in this work."

During the Summer of 1929 the new plan of having the family physicians examine the school children before entering school was tried out as far as possible. The report obtained from a questionnaire sent out to nurses throughout the State, while not complete, makes us feel that there are some defects which may be corrected. The committee therefore makes the following observations:

1. All teachers are required by the Board of Education to study the principles of making these inspections of children in accordance with the West law.

2. The reports indicate that the physicians as a whole have not grasped the real benefit to the children, schools, and Commonwealth, to be had from careful accurate examinations as specified by the West law and emphasized by the Child Welfare Committee.

Because of these conditions your committee recommends by resolution:

V. "1. That all physicians who do not feel competent to make these health examinations be requested to take a course of instruction at one of the Medical Schools of Virginia on making health examinations of children, in order to better evaluate the conditions found and thereby more efficiently conserve the health of our growing generation.

"2. That those who cannot take this course at either of the two schools may take such a correspondence course as may be offered by either of the two medical schools and in connection with the State Department of Health.

"3. That a copy of these resolutions be sent to the two Medical Schools, to the State Department of Health, and State Department of Education."

In order that as much of this work as possible may be done before the children enter school, your committee passed the following resolution:

VI. "Resolved, that whereas the West Law requires that all pupils in all the public schools, elementary and high, of the State, shall receive as part of the educational program a health examination, and whereas no child is accepted as a school child until he has been registered, we recommend to the Board of Education that all children entering school for the first time be registered before the spring



term of the previous year closes, as at that time these children should receive a health examination, and such corrections should be made in regard to their health as are necessary before the fall session opens."

With an idea of carrying out more widely and efficiently the health examinations of these children, the Committee passed the following resolutions, a copy of which was sent to the Post-Graduate Committee of Instruction of the Medical Society of Virginia:

VII. "We, the members of the Child Welfare Committee, would like for you to take into consideration the advisability of arranging in conjunction with the various medical organizations of the State, or such other agencies as may seem best, demonstration clinics for a better plan in the examination of children. The reasons for this request are:

"1. The very high percentage of both pre-school and school children who are physically unfit to take the proper advantage of the educational opportunities offered them.

"2. The strenuous effort that is now being made by the State Department of Health to get these little patients into the rightful hands, the family physicians.

"3. The importance of periodic health examinations of children through their school life has only recently been recognized generally, for which reason many of us have not had the advantage of such training as would seem most helpful in making these examinations."

In event it can be arranged, it would seem to our committee that it is desirable that these clinics be not entirely confined to the centers of population but made to embrace all portions of the State, especially through the county medical societies.

In order that proper provision be made for such courses of instruction annually, your committee passed a resolution requesting the two Medical Schools of Virginia to put on a short course of instruction in the regular curriculum of the schools, covering the fifteen points as outlined in resolution No. I of the Child Welfare Committee in connection with the State Department of Health.

We wish further to report that through the efforts of Dr. Brydon and myself, we have gotten two of our own committee and also Dr. Brumfield to read papers at this meeting on the activities of Child Welfare Work, the object being to increase public interest and knowledge on this very important subject. This course was followed last year and two papers were read.

We feel that the work of this committee is far from finished and your committee recommends that it be retained and a number of members added to it—if advisable, one from each Congressional District—so that further and more intensive study of this work may be carried out.

W. P. JACKSON, *Chairman*.  
PERCY HARRIS,  
A. T. FINCH,  
J. H. HIDE.

It was moved, seconded and carried that this report be received and filed.

Owing to the lateness of the hour, the House then adjourned to meet at 9:00 A. M., Wednesday, October 23, 1929.

October 23, 1929

The House convened on Wednesday morning, with the President, Dr. J. Bolling Jones, in the chair.

A quorum being found present, it was announced that the House would first receive reports from committees not heard on Tuesday.

Dr. E. C. S. Taliaferro, chairman of the Walter Reed Memorial Commission, said that his committee had no written report, though they still reported progress. The building has been repaired and is open to the public and has become quite a public shrine. Motion was made and seconded that this report be received with thanks and filed. Carried.

#### The Report of the Committee on Maternal Welfare to the Medical Society of Virginia

Your committee is glad to report continued progress in the attempt to reduce the maternal and foetal death rate in the State of Virginia. The committee has held two stated meetings in the office of the chairman, Dr. Greer Baughman. The first one was held February 24, 1929. In addition to the members of the committee at this meeting there were in attendance by special request, Dr. Margaret Swigart, Children's Bureau, Washington, D. C.; Mrs. Emily W. Bennett, State Department of Health, and Dr. J. Bolling Jones, President of the Medical Society of Virginia. At this meeting the various members of the committee were given specific assignments for their study and report as follows: A. Establishment of dispensaries in the hospitals in the State for care of indigent pregnant women, Dr. Baughman and Dr. Brydon; B. Further education of midwives, Dr. Ruth Mason; C. The instruction of pregnant women, Dr. Calkins; and D. Establishment of public health nurses in counties where there are none, Dr. Miles. The second meeting was held September 22, 1929. In addition to the members of the committee, there were present Dr. E. G. Williams, State Health Commissioner; Mrs. Emily W. Bennett, State Department of Health; Miss Nannie J. Minor, State Department of Health, and Dr. J. Bolling Jones, President of the Medical Society of Virginia.

Several papers were read at different Medical Society meetings on prenatal care by the members of the committee during the past year, but the main activities of this committee have been to work out plans for placing public health nurses in every county of the State, because we believe that by this means progress can best be made in the reduction of maternal and foetal mortality. A letter was written by Dr. P. W. Miles for the committee to all the doctors on county boards of health in counties where there is no nurse, soliciting their interest and aid in securing a nurse. It was determined at the last meeting of the committee that the President of the Medical Society of Virginia, Dr. J. Bolling Jones, would be requested to meet with the Ladies' Auxiliary of the Medical Society of Virginia and attempt to get them interested in helping forward this worthy plan.

It is with pleasure that we report in the course of the last year that two counties that have not had a health nurse have secured one and two that had discontinued on account of lack of funds have employed health nurses.

Respectfully submitted,

GREER BAUGHMAN, M. D., *Chairman*,  
MARY EVELYN BRYDON, M. D., *Secy.*,  
RUTH MASON, M. D.,  
P. W. MILES, M. D.

It was moved, seconded and carried that this report be accepted and the committee continued.

#### Report of Committee to Investigate Problems Pertaining to Laboratory Technicians

Your "Committee to Investigate Problems Pertaining to Laboratory Technicians," desires to report as follows:

About three years ago, following a discussion of a paper on the scientific program about the laboratory technicians situation in Virginia, the Society had appointed a committee to investigate the situation and report its findings. This has been done as ordered. At the time of the work of the first committee there were a good many poorly equipped and trained technicians at work in the State and several obviously ineffective training points. By correspondence with many hospitals and laboratories throughout the State, your committee has tried to raise slowly, standards of the training courses, discourage ill-prepared persons from becoming technicians, to distribute information about the situation to the profession and inquiring public, and to act in a limited way as a medium of exchange of information between persons desiring technicians and those seeking positions. Due to the nature of the task, progress has been slow and carried on largely by correspondence and conference by the chairman. Your present committee has had no set meeting, but its chairman and some of its members have been quite active all the year in this work and believe that progress has been made, in that in general the quality of technicians in our State is about up to the average and that better educated persons are now entering this occupation. The two medical schools are active in this field and turning out persons who are well trained. There are several other places where small groups of technicians are being trained and given quality work. There is one place in Clifton Forge where a private technician training school, conducted by no one with medical training and apparently operated for profit, is at work turning out graduates with limited experience and qualifications. We have tried by quiet and friendly means to have this school discontinued, but we have been unsuccessful. Your committee has never thought that much pressure should be brought to bear upon such situations and so this poor quality course continues.

The American Society of Clinical Pathologists has been working for some time on the laboratory technician situation in the whole country and now has a definite program of rating training courses and technicians. The chairman of this committee, having studied this problem for some years, feels that their solution of the situation is good and could easily replace the work of our State Society in the same field.

In conclusion, the chairman, acting for the committee, recommends that this committee be continued for one year; that within the judgment of the Society and its own membership, it take up definite co-operation with the program of "The Registry of Technicians of the American Society of Clinical Pathologists," to put this larger and better plan in operation; that members of the State Society lend their support only to approved laboratory training courses; that minimum standard high school graduation

be set as a basis for admission to any laboratory training school in the State.

Respectfully submitted,

CHARLES PHILLIPS, *Chairman*.

J. D. WILLIS,

R. D. CALDWELL,

W. B. MARTIN,

A. H. STRAUS.

It was moved and seconded that this report be accepted and filed and the committee continued. Carried.

#### Committee on Cancer Education

I have no definite report to make as chairman of the Cancer Committee of the Medical Society of Virginia.

I requested at the last meeting that the committee be discontinued, as the work seemed to be much more fully taken up by the Virginia Section of the American Society for the Control of Cancer. This Virginia Section includes in one way or another all of the members of the committee, and it appears to me to be merely a duplication of work that is unnecessary.

J. SHELTON HORSLEY, *Chairman*.

It was moved that the report be accepted and the committee discharged. Seconded and carried.

#### Report of Library Committee

In making this report, I am using a portion of a letter received from Dr. Stuart McGuire, who is a member of this committee.

There has been no change in the status of the proposed buildings of the Richmond Academy of Medicine and the Medical College of Virginia. The lot has been purchased and paid for, the working plans have been completed and approved.

I think it reasonable to hope that the erection of these buildings will be begun during the coming year. The plans provide for the headquarters and offices of the Medical Society of Virginia and for the museum library of the Academy and the working library of the College.

I think we are justified in advising the Society to postpone taking any active steps, feeling the needs of the Society will be met in Richmond without any capital outlay.

I. C. HARRISON, *Chairman*.

It was moved, seconded and carried that this report be accepted and adopted.

#### Report of Committee on Memorial to Dr. Ephraim McDowell

TO THE PRESIDENT OF THE MEDICAL SOCIETY OF VIRGINIA:

I have the honor to present the following report, in re Birthplace Marker of Dr. Ephraim McDowell:

At the 1927 meeting of the Medical Society of Virginia, I was appointed by Dr. John W. Preston, then President, as chairman of a committee, consisting otherwise of Dr. O. H. McClung, of Lexington, and Dr. M. T. Vaden, of Buena Vista.

Into our hands was committed the task of erecting suitable marker, commemorating the birth of the eminent pioneer surgeon, Dr. McDowell.

The spot on which the house stood—but which house is no longer in existence—is in Rockbridge



County, about eight miles north of Lexington, on the Lee Highway. Here he was born, and here he lived until, when still a small boy, his parents removed to Danville, Kentucky; and it was in the latter place that he grew up, and later achieved his fame.

Unexpected opposition was encountered from the present owner of the land, but by discreet and diplomatic negotiation, this was finally overcome. The monument was but recently completed, and is a beautiful and lasting memorial. The base or shaft is of native blue limestone, carefully selected, carefully hammered, and carefully laid. The tablet, 24

Your committee, through its chairman, personally superintended every step of the construction, making a number of visits while it was in progress of building, and is satisfied that in every respect the work is well done, and is enduring.

The committee asks that it be discharged.

Respectfully submitted,

E. P. TOMPKINS, *Chairman*.

Moved that the report be accepted and that the committee be discharged with thanks for their work. It was further moved that the committee be requested to arrange for the dedication exercises



THE DOCTOR McDOWELL BIRTHPLACE MARKER

INSCRIPTION ON BRONZE TABLET  
NEAR THIS SPOT  
DR. EPHRAIM McDOWELL  
WAS BORN NOVEMBER 11, 1771

THE FATHER  
OF ABDOMINAL SURGERY  
BEGINNING MEDICAL STUDY  
IN STAUNTON, VIRGINIA,  
CONTINUING IT IN  
EDINBURGH, SCOTLAND  
HE LATER RECEIVED  
THE HONORARY DEGREE  
FROM THE UNIVERSITY OF MARYLAND  
POSSESSING THE HIGHEST ATTRIBUTES  
OF THE PHYSICIAN AND SURGEON.  
HE WAS A PIONEER  
IN WORK WHICH HAS SAVED  
THE LIVES OF COUNTLESS THOUSANDS.

ERECTED BY  
THE MEDICAL SOCIETY OF VIRGINIA  
1929

by 36 inches, is of the best statuary bronze, of attractive design. The whole effect has been pronounced by good judges, most pleasing. Photograph and drawing is submitted herewith.

before considering themselves discharged. Seconded and carried.

#### Report of Committee on History of Medicine in Virginia

Your Committee on the History of Medicine in Virginia, consisting of Doctors Beverley R. Tucker, F. C. Rinker and W. B. Blanton, met soon after it was appointed and approved plans to employ a part time research worker and proceed with the work of assembling material for a history of medicine in this State.

The first draft of the section which deals with Virginia Medicine in the Seventeenth Century has been completed, and a beginning has been made on the other centuries. If the work is to be prosecuted further, and the services of our present very excellent research worker are to be retained, another appropriation of \$500.00 will be needed this year, and it is hoped that the Society will see fit to authorize this appropriation.

WYNDHAM B. BLANTON, *Chairman*.

It was moved that this report be accepted and the committee continued. Seconded and carried.

A report was next called from the special committee appointed at the winter meeting of the Council:

**Report in re a Joint Session of the State Medical, Dental and Pharmaceutical Societies in 1930.**

At the meeting of the Executive Council, held February 26, 1929, I was appointed a committee of one to meet with committees from the State Dental Society and the State Pharmaceutical Society, regarding a joint meeting of the Medical, Dental and Pharmaceutical Societies for 1930.

This committee has had several meetings and the result therefrom, and recommendations are as follows:

1. That such a joint meeting is highly desirable.
2. That, in order to make the plan practical, it was decided that we recommend to our respective organizations that they meet during the same week some time during 1930.
3. That only one joint session be held.
4. That all other meetings of the respective organizations be conducted wholly by the individual societies, just as if the other societies were not in session in the same city at the same time.
5. That the program of the one joint session be left entirely in the hands of the program committees of the respective organizations.
6. That, merely as a tentative suggestion, the second week in October be named as a suitable time.

The Dental and Pharmaceutical Societies respectively, have adopted the above report very enthusiastically, and wish to learn the desire of the Medical Society of Virginia, and if approved, to go into the necessary steps to perfect this joint meeting through the respective Executive Committees.

Respectfully submitted,

LAWRENCE T. PRICE.

Dr. Moncure asked if the House adopted this report, would the Society have to meet in Richmond? It was answered that it would only be necessary to have the meeting in some city which would be large enough to take care of the three organizations; further, that only one joint session of the three organizations was planned.

It was then moved, seconded and carried that this report be adopted.

In accordance with action taken at the Tuesday afternoon meeting of the House of Delegates, the joint report from Drs. J. Allison Hodges and J. W. Preston was next called for.

Dr. Preston said that they were in full accord relative to all matters under discussion and called attention to the fact that the work of three of the Society's committees overlapped. Consequently, he recommended that the Post-Graduate Study Committee be discharged and, in order to comply with our Constitution and By-Laws, all the work be conducted by the two standing committees now covering that subject. It was moved, seconded and carried that Dr. Preston's report be received with thanks and that the Committee on Post-Graduate Study be discharged.

It was then moved that Dr. Hodges' report be accepted and adopted as presented. (See page 545). Seconded and carried.

Dr. J. A. White, chairman of the Membership Committee, next offered a motion which was seconded and carried, that Dr. J. Bolling Jones, our retiring

President, and Dr. William Gerry Morgan, President-elect of the American Medical Association and a member of the Medical Society of Virginia, be made honorary members of the Society.

Dr. Alexander G. Brown, Jr., chairman of the Publication and Program Committee, said that he had no written report, as the duties of his committee are more or less routine. The committee realized that the program, this year, was very crowded, and did the best they could in its arrangement. The MONTHLY seems to be moving along in the usual way. It was moved that this report be received and filed. Seconded and carried.

The President stated that the Nominating Committee should now be elected. Motion was made that a recess of ten minutes be taken that the delegates from the several councilor districts might get together and nominate members for the Nominating Committee and that the delegates in the odd numbered districts might elect their councilors for a term of two years.

During the recess, Dr. Morgan asked the privilege of the floor to express his thanks for the honor given him. He said he wished to express his sincere appreciation for the great courtesy shown him and for the signal honor in being elected an honorary member. He said that he was trying in every way possible to fit himself for the office of President of the American Medical Association. He complimented the work of our House of Delegates for its vigor and for the constructive work it is putting over.

Dr. J. Bolling Jones said that he, too, wished to express his appreciation. He spoke of his love for the Society and said that, in accepting this honor, he wished to say that he is still in the ranks and would esteem it a privilege to do what he could for the Medical Society of Virginia.

Dr. W. W. Wilkinson said he thought it would be a help to the members of the House if they were to familiarize themselves with the By-Laws before attending meetings and suggested that, when component societies send names of their delegates to the secretary, she send copies of the Constitution and By-Laws to such.

The following composed the Nominating Committee:

- 1st District—Dr. E. L. W. Ferry.
- 2nd District—Dr. N. G. Wilson.
- 3rd District—Dr. Fred M. Hodges.
- 4th District—Dr. W. C. Harmon.
- 5th District—Dr. H. H. Hurt.
- 6th District—Dr. Alvah Stone.
- 7th District—Dr. C. O. Dearmont.
- 8th District—Dr. G. F. Simpson.
- 9th District—Dr. Isaac Peirce.
- 10th District—Dr. E. P. Tompkins.

The President appointed Drs. C. B. Bowyer, J. L. Hamner, W. W. Wilkinson and W. C. Harmon as tellers.

Dr. Charles R. Grandy, Norfolk, automatically succeeded to the presidency.

From the report presented by the Nominating Committee, the following officers were elected:

- President-elect—Dr. J. Allison Hodges, Richmond.
- Vice-Presidents—Dr. R. L. Raiford, Franklin.
- Dr. John A. Gibson, Leesburg.
- Dr. F. H. Smith, Abingdon.

Executive Secretary-Treasurer—Miss Agnes Edwards.



The districts electing councillors announced the following:

- 1st District—Dr. R. W. Bates, Newtown.
- 3rd District—Dr. Roshier W. Miller, Richmond.
- 5th District—Dr. J. M. Shackelford, Martinsville.
- 7th District—Dr. Percy Harris, Scottsville.
- 9th District—Dr. C. B. Bowyer, Stonega.

Dr. Southgate Leigh, Norfolk, was elected a delegate for two years to the American Medical Association, and Dr. E. G. Williams, Richmond, was elected delegate for one year to complete the unexpired term of Dr. Murat Willis, deceased.

It being announced that at this meeting the House should select names to be nominated to the Governor of Virginia at the proper time as members of the State Board of Medical Examiners, it was decided to nominate all of the present incumbents, whose names follow:

- 1st District—Dr. J. H. Ayres.
- 2nd District—Dr. P. St. L. Moncure.
- 3rd District—Dr. H. U. Stephenson.
- 4th District—Dr. Fletcher J. Wright.
- 5th District—Dr. I. C. Harrison.
- 6th District—Dr. J. W. Preston.
- 7th District—Dr. P. W. Boyd.
- 8th District—Dr. Lewis Holladay.
- 9th District—Dr. F. H. Smith.
- 10th District—Dr. A. F. Robertson.

The next order of business was the selection of the next place of meeting.

Invitations were presented from Norfolk and Richmond, and Norfolk was selected by a vote of 21 to 15.

Dr. J. Allison Hodges presented the following:

**Resolution Relative to Mental Hygiene and to the Mentally Ill and Defective.**

Whereas, The problem of the mentally ill and defective seems to be coming more serious from a medical as well as an economic standpoint, and that the prevention of mental disease and defect is of vital importance to the State; and,

Whereas, Mental hygiene is a problem, the solution of which is primarily a medical function. *Therefore, be it*

*Resolved*, That the Medical Society of Virginia approves most heartily the recent activities in the State looking to the development of a comprehensive mental hygiene program which has as its main purpose the prevention of mental disorders and defects;

That it commends the extensive structural additions and the various material improvements that have been made, especially in recent years at the several State institutions;

That this Society calls especial attention, with approval, to the recommendations of the hospital authorities relative to increasing the medical and nursing staffs to the end that these institutions may be in a better position to become centers of scientific mental medicine;

That they be thoroughly equipped with all modern facilities needed in the proper care and effective treatment of their insane, feeble-minded and epileptic patients;

That means be provided so that the patients in these institutions may be furnished with the most approved dietary so essential to their well-being and recovery;

That this Society emphasizes the great need in

this State for very material enlargement of the colonies for the feeble-minded and epileptics; and

That the State make sufficient enlargement of the hospitals so as to provide for all the insane needing hospital care and treatment;

That this Society earnestly recommend to His Excellency the Governor, and to the Legislature to provide sufficient appropriations to enable the State institutions to measure up to the standard of the best State institutions in the country and to sustain an efficient mental hygiene program looking to the prevention of mental disorders, defects and delinquency;

Finally, that this Society recommend the establishment of a chair of psychiatry in each of our medical colleges.

It was moved, seconded and carried that this resolution be adopted.

Dr. Hodges then thanked the House for their election of him to the office of President-elect and pledged his best efforts to carry on the work incident to his office as far as he might be physically able.

Dr. Jones read a telegram conveying greetings from the Southern Medical Association.

Dr. Fred M. Hodges presented the following:

WHEREAS, Much misinformation is promulgated today on the question of diets, etc., causing the introduction of the American diet-food fads.

Very few of these fad foods can take the place of the older staple foods, good meat, dairy products, green vegetables, fruits and the better grades of bread prepared from white flour.

Any balanced diet should contain animal protein, fruits, vegetables, especially the leafy vegetables, which will insure adequate vitamin and mineral salt content, digestible fat such as butter-fat, and sufficient of the digestible carbohydrates to afford readily available energy.

Carbohydrates, including sugar and starches, but especially starches, furnishes the American public their main fuel for energy, the quantity varying with the amount of physical activities which the individual expends. Much of the starch should be supplied by the most available and easily digestible foodstuffs, of which white flour is an excellent example.

The allegation that white bread, meat or any other staple food when employed in mixed diet is responsible for certain grave illnesses, is not supported by scientific facts. *Therefore, be it*

*Resolved*, That we desire, in the public interest, to place on record that in our opinion:

1. The exaggerated claims for various food fads are entirely unwarranted by scientific evidence or practical experience; and the advertising and other propaganda furthering their substitution for the older articles of diet should be condemned.

2. The danger of nutritional deficiencies has been grossly exaggerated. No one food is a perfect food; but a diet consisting of dairy products (especially milk), leafy vegetables, fruits, meats and easily digestible starches for heat and energy, furnishes an excess of all food factors necessary for proper growth and nutrition and resistance to disease.

3. Any variation from normal diet should only be prescribed by a properly trained advisor after a careful study of the dietary requirements of the individual seeking advice.

It was moved, seconded and carried that these resolutions be adopted.

The budget for the coming year, as arranged by the Council, was presented. This was approved and it was moved and seconded that this be adopted. Carried.

Dr. E. C. S. Taliaferro moved that a vote of thanks be extended the Albemarle County Medical Society and the University of Virginia for the splendid entertainment of the Society. Seconded and carried.

There being no further business, the House adjourned *sine die*.

**List of Members of Standing and Special Committees of the Society as Announced by Dr. Charles R. Grandy, President**

NOTE: Figures after names in Standing Committees indicate the length of term of office. Each year, one new member is named on each Standing Committee for a term of three years.

**SCIENTIFIC WORK AND CLINICS:** *Chairman*, Dr. John S. Horsley, Jr., (2), Dr. J. Edwin Wood (1), and Dr. J. B. Nicholls (3).

**PUBLIC POLICY AND PUBLIC HEALTH:** *Chairman*, Dr. A. L. Gray (3), Dr. J. L. Hamner (1), and Dr. E. G. Williams (2).

**PUBLICATION AND PROGRAM:** *Chairman*, Dr. Alexander G. Brown, Jr., (2), Dr. W. B. Martin (1), and Dr. John H. Neff (3).

**MEDICAL ECONOMICS:** *Chairman*, Dr. John O. Boyd (2), Dr. Paul W. Howle (1), and Dr. Malcolm H. Harris (3).

**MEDICAL EDUCATION AND HOSPITALS:** *Chairman*, Dr. J. W. Preston (2), Dr. A. L. Tynes (1), and Dr. P. St. L. Moncure (3).

**MEMBERSHIP:** *Chairman*, Dr. J. A. White (2), Dr. John A. Gibson (1), and Dr. Isaac Peirce (3).

**ETHICS AND JUDICIARY:** *Chairman*, Dr. Garnett Nelson (2), Dr. J. E. Rawls (1), and Dr. I. C. Harrison (3).

**Special Committees—Medical Society of Virginia**  
**WALTER REED MEMORIAL COMMISSION:** *Chairman*, Dr. E. C. S. Taliaferro, Dr. Clarence Porter Jones, Dr. Greer Baughman, Dr. H. S. Hedges, and Dr. Garnett Nelson.

**MATERNAL WELFARE:** *Chairman*, Dr. Greer Baughman, Dr. P. W. Miles, Dr. Ruth Mason, and Dr. C. B. Bowyer.

**TO INVESTIGATE PROBLEMS PERTAINING TO LABORATORY TECHNICIANS:** *Chairman*, Dr. Charles Phillips, Dr. J. D. Willis, Dr. R. D. Caldwell, Dr. W. B. Martin, and Mr. Aubrey H. Straus.

**LIBRARY:** *Chairman*, Dr. I. C. Harrison, Dr. Stuart McGuire, and Dr. Frank Hancock.

**HISTORY OF MEDICINE IN VIRGINIA:** *Chairman*, Dr. Wyndham B. Blanton, Dr. B. R. Tucker, and Dr. F. C. Rinker.

**CHILD WELFARE:** *Chairman*, Dr. W. P. Jackson, Dr. Percy Harris, Dr. R. T. Hawks, Dr. J. H. Hiden, and Dr. A. T. Finch.

### The Patrick-Henry Medical Society

Held its regular quarterly meeting in Martinsville, October 10, 1929. Both Counties were well represented by members present.

Drs. J. M. Shackelford and W. C. Akers, were appointed delegates to the State Medical Society with Drs. H. G. Hammond and J. T. Shelburne as alternates.

At this meeting three new members were voted in; Drs. W. N. Thompson, Stuart, A. W. Rucker, Fieldale, and C. G. Bennett, Martinsville.

There was no prepared program but all present enjoyed a round table discussion of interesting as well as instructive cases which had been seen.

The following officers were elected for the coming year: Dr. W. C. Akers, Stuart, president; Dr. J. W. Simmons, Martinsville, vice-president; and Dr. C. G. Bennett, Martinsville, secretary-treasurer.

### The Roanoke Academy of Medicine,

At its first Fall meeting on October 7th, elected the following officers for the year 1929-1930: President, Dr. J. D. Willis, Roanoke; vice-presidents, Dr. John O. Boyd, Roanoke, and Dr. J. B. Nicholls, Catawaba Sanatorium; secretary-treasurer, Dr. C. A. Young (re-elected), Roanoke. Delegates were also elected at this time to represent the Academy at the Charlottesville meeting of the State Society. It is stated that the total membership of the Academy at the beginning of this year was 110 active and two honorary members.

### The Mecklenburg County Medical Society

Held its Fall meeting with the staff of the Chase City Hospital, at Chase City, Va. Fifteen physicians enjoyed an interesting meeting and the delicious dinner which was served them. Papers were read by Drs. J. T. Louthan, Wylliesburg; W. H. Venable, Burkeville; and Drs. N. D. Bitting, A. T. Finch, B. S. Yancey, and W. T. Dodd, of the Hospital staff. This Society will hold its January meeting at South Hill.

### University of Virginia Medical Society.

At the meeting of the Society held on the evening of September 30th, Dr. Horsley Gantt addressed the Society on "Some Experiences in Soviet Russia." Dr. Gantt graduated from the University of Virginia in 1920, and from 1922 to 1924 was with the American Relief Association in Russia. Dr. Gantt has for the last five years been associated with Professor Pavlov, in Leningrad, and has translated into English his works on "Conditional Reflexes." In addition he has written several biographical sketches of him. Dr. Gantt is now working at the Johns Hopkins Medical School in association with Dr. Adolph Meyer.



## Woman's Auxiliary, to the Medical Society of Va.

### A THIRTEENTH RECIPE FOR CORNED BEEF HASH.

#### "THE SAME IN ANOTHER WAY."\*

By CORINNE KEEN FREEMAN, Philadelphia, Pa.  
(Mrs. Walter Jackson Freeman).

President, Woman's Auxiliary to the Medical Society of the  
State of Pennsylvania.

In addition to problems of a purely local nature, which each county must solve for itself, the Woman's Auxiliary is faced by several problems of universal application. The first is inherent in its character as an Auxiliary, subject to an outside organization composed chiefly of men. As a preliminary to all Auxiliary work, the best guide that I know is the Book of Esther. I recommend you all to read Esther again, not on the old, familiar, chapter-a-night plan, but from start to finish at one sitting. You can read it in about twenty minutes, and there you shall find not only a marvelously dramatic story, told with an arresting simplicity and naiveté, but an exposition of most consummate skill in handling an impossible situation.

Ahasuerus and the seven princes of Media and Persia were much upset over the threat of feminism. The King was an inordinate lover of parties, and in the third year of his reign had staged one that lasted "an hundred and four score days." To top things off, he gave another, lasting seven days, for all the inhabitants of Shushan the palace, and then, his heart "merry with wine"—note that graceful euphemism—he sent for Queen Vashti "to shew the people and the princes her beauty." Imagine the universal stupefaction when Vashti refused to appear! Hats off to Vashti. She deserves a place in history side by side with Sergeant York.

Terror struck King Ahasuerus and his princes, lest all the women should follow Vashti's example and defy their lords, so after much consultation a letter was sent to "all the hundred and twenty and seven provinces," saying that Vashti had been put away, and that "every man should bear rule in his own house." Then they set about finding a successor to Vashti, and it was into these

troubled waters that Uncle Mordecai steered Esther's frail barque.

Esther was young, beautiful and an aristocrat—would that we could all lay claim to these first aids to diplomats—but in addition to these peculiar and hereditary advantages, she had a wonderful disposition and was a profound student of human nature, so that she became mistress of a flawless technique. She was so amiable and so well-bred that she "obtained favor in the sight of all of them that looked upon her—and the King loved Esther above all the women—so that he set the royal crown upon her head, and made her queen instead of Vashti."

It took Esther between three and four years to reach this point, and we may be sure that from the day she entered the palace she applied herself assiduously to the study of King Ahasuerus in all his moods and tempers, a measure of "safety first" most essential in dealing with oriental—and other—potentates.

When Esther had been queen five years, there came the sudden call to save her people, whose very existence was threatened by Haman's jealous fury against Mordecai. No wonder the poor girl trembled and hesitated when Mordecai told her to go unbidden to the King, for as she pointed out, "all the King's servants, and the people of the provinces, do know that whosoever, whether man or woman, shall come unto the King into the inner court, who is not called, there is one law of his to put him to death, except such to whom the King shall hold out the golden sceptre, that he may live." But Mordecai was very firm with her. "Think not with thyself that thou shalt escape in the King's house more than all the Jews. For if thou altogether holdest thy peace at this time, then shall there enlargement and deliverance arise to the Jews from another place; but thou and thy father's house shall be destroyed: and who knoweth whether thou art come to the kingdom for such a time as this?"

So Esther, being a thoroughbred, took her courage in her two hands, ordered a three-day fast of all the Jews, and sent this message to Mordecai—"So will I go unto the King, which is not according to the law; and if I perish, I perish." Isn't the simple, direct old Bible diction magnificent? What a thrill in those final words—"If I perish, I perish."

But Esther wasn't merely beautiful and de-

\*Address delivered by invitation before the Woman's Auxiliary to the Medical Society of Virginia, at its annual meeting, in Charlottesville, Va., October 23, 1929.

voted and heroic, she was canny. She fasted and prayed, it's true, but then she bathed and perfumed herself, and put on her royal robes, and doubtless, albeit with chattering teeth, she studied her background carefully before taking her place. When King Ahasuerus saw her trembling in the inner court of the palace, where it was death to appear unwelcome, and graciously extended the golden sceptre, Esther not only knew exactly what she wanted, but she knew exactly how to get it, and she began with that time-honored maxim, "Feed the brute."

So much for the attitude of the Auxiliary towards the Medical Society.

With Esther in mind, the next problem, co-operation with the Advisory Committee, will resolve itself into a source of great strength. The new national Auxiliary by-laws direct every State and County Auxiliary to ask the Medical Society for an Advisory Committee, to which all knotty questions may be referred for solution. Many Auxiliaries labor under a great disadvantage in a yearly turn-over of officers and committee chairmen, so that a permanent advisory committee, with a continuous policy, will prove a welcome stabilizer.

It may be advantageous to change national and even State officers every year, although it takes at least that length of time to shake down into a new job, but it does seem to me a very foolish plan in most County Auxiliaries, where the number of women competent and willing to conduct Auxiliary affairs is necessarily very small. Personally, I advise changing until you get a good woman in office, and then putting a ball and chain around her ankle until she goes on a hunger strike.

Some State Medical Societies group their counties in districts, with a councilor in charge of each, the Auxiliary similarly organized. The District Councilors seem to me destined to play an important part in developing the Auxiliary, particularly in a State like Virginia, with a more or less scattered population. These Councilors help in organizing new Counties and provide the constant personal supervision and help necessary to develop small and new Auxiliaries. One of their chief duties should be to assist in arranging programmes, a great stumbling block to new Auxiliaries, and a very important means of keeping up interest. The Councilors act as liaison officers between the County Auxiliaries and

the State President, and should be retained in office over a period of years.

So much for organization policies, which have a truly important function in establishing orderly and efficient methods of conducting business. We come now to the far more vital and interesting question—the object for which this machinery exists. Is the object worth the machinery, and does the Auxiliary justify its existence? The answer is, that in seven years over 10,000 women have thought the Auxiliary good enough to join, and 10,000 women can hardly *all* be morons. The national meeting in Portland brought together a very fine type of woman, earnest, broad-minded, hard working. The Convention was like a mosaic, made up for the most part of small pieces, each adding its own special touch to the whole, and necessary to complete the picture. No County Auxiliary is insignificant, each has its local responsibility, each its special place in the finished design.

In the last analysis, the County Auxiliary is the heart of the matter, for the national and State organizations exist only to help the Counties do the real work. And right here I want to give you a second catch-word—ESTHER for technique, and LOCAL CONDITIONS for objects. We might combine the two into a motto and say, "ESTHER STUDIED LOCAL CONDITIONS." The phrase "local conditions" ought to be the middle name of every County Auxiliary, for its activities must be based entirely on local needs and opportunities. I was born and raised and have spent all my life in the heart of a big city, so I can't presume to offer advice for County work in a State like Virginia. But with our second catchword always in mind, I venture to offer a few humble suggestions which you can adapt to your local needs, or discard, as seems best to you.

I hearten myself by starting with one of the few subjects important to all Auxiliaries alike—medical history. Virginia has suffered so terribly from the ravages of contending armies that already priceless records are lost forever. Let me beg you to lose no time in collecting and preserving all that remains of the history of early medicine and early physicians in Virginia, and particularly to get from the old people their recollections of old times. Old people love to live over again their early days, and we all know how bitterly we regret not having paid more attention to



Grandfather's stories of his youth. Write it all down before it's too late.

As I take it, one of the chief objects of the Auxiliary is to bring the subject of HEALTH, both personal and public, before each local community. And here it seems to me, we have a heaven-sent opportunity in the Women's Clubs. Doubtless ninety-five per cent of your Auxiliary members are active clubwomen and in a position to help. One can engage all the seven archangels and all the movie stars to present a subject, but one can't engage an audience to listen to them, and an audience is what we may hope to secure through the Women's Clubs.

Let me tell you what the Women's City Club of Boston did some two years ago to forward the cause of periodic health examinations. They secured the services of some competent physicians for four days, and arranged a regular schedule of forty-five minute examinations for their members at \$10.00 per person. So many applied that the time had to be twice extended, and it has now become an annual feature. Would this be feasible anywhere in Virginia? It works in Boston.

Another idea. If your advisory committee approves, I'd write to the President of your Federated Clubs and ask the Board to urge every club in the Federation to devote at least one meeting each year to HEALTH, personal and public. Tell her that the Auxiliary is a State-wide organization, and is prepared to assist in arranging programmes and securing speakers. Suggest health movies, always a big drawing card, and tell her where to get them. Send her the names of good speakers. Every Auxiliary in the country, it seems to me, can establish these contacts, and can see to it that the subjects are discussed by competent medical authorities and not by Bernarr McFaddens, chiropractors, and their ilk.

And here a word of caution. Never make the mistake of attacking these people personally or decrying their treatment. When the sceptre was extended, did Esther demand Haman's immediate execution? She did not. She invited Haman and the king to two handsome parties, and after she was in perfectly solid with Ahasuerus, she struck, swift, sure, and successfully. Remember, we Auxiliary members are not physicians and can't know what treatment should be prescribed. All we do insist on is, that everybody responsible for

human life shall have had two years' training in the basic sciences and two years more in their application, before he is turned loose on the community. Ask your friends the direct question—Would you trust your life to anyone who had taken a six weeks' correspondence course, such as is offered by some diploma mills, or even six months' training in anatomy, as is the case in some of the cultist schools? The public doesn't understand the real point of our objections to cults, and the Auxiliary has great responsibility, as opportunity offers, in bringing this point home, particularly to other women.

What about the radio? The Philadelphia County Auxiliary has just accepted an invitation from the County Medical Society to use two evenings of their regular season's broadcasting programme. We feel it a great opportunity for practical health propaganda. Would it go in Virginia?

The matter of public health activities will tax even Esther's technique, but is not insoluble. My own experience has been singularly happy, but then it is very limited, and I am blessed with two marvelous Ahasueruses, whose sceptres, like the traditional latchstring, are always out. At my request, and with the approval of Dr. William T. Sharpless, President of the Pennsylvania State Medical Society, Dr. Theodore B. Appel, Secretary of Health for Pennsylvania, has ordered a survey made of health conditions in each county in the State, with a view to assigning some definite public health work to each County Auxiliary.

Please note the procedure here: First. The project was approved in principle by the Chiefs. Second. No actual work will be started until local conditions have been carefully studied by those in authority, so as to adapt the Auxiliary programme to its own limitations and to local needs. Third. I asked Dr. Appel to consider each county *individually*, and to assign to each County Auxiliary a small, very definite and not too easy piece of work. Nobody is really interested in an easy job, nobody has time for a big one, and nobody will bother with an indefinite one. I think the whole secret of keeping an Auxiliary interested lies in making its work small, moderately hard and exceedingly definite.

Dr. Appel's response was all that I could

have wished, and I am expecting definite reports from his survey at any moment. Then there need be no further question of the Auxiliary's justifying its existence.

Countless other useful activities are outlined in the various county reports, but I shall mention only one, a pet project in Pennsylvania, the Medical Benevolence Fund, to take care of aged and infirm physicians and their families. We all know too well, some of us by sad experience, the frightful hiatus between income and outgo in the case of death or prolonged illness or other incapacity of a physician. I recommend this object particularly to your generosity.

And finally, I shall offer one parting suggestion, like my first, universally applicable. Bring your husbands to the State and County Medical meetings. I am told that since the wives have joined the Auxiliary, and insist on going to the State meetings, there has been a noticeable improvement not only in the numbers but in the class of men attending the Conventions, with a corresponding advance in the scientific importance of the exhibits and the papers presented. My dear old father has always said: "Man is the head of the family, but woman is the neck, and turns the head wherever she pleases." Let us recognize and accept this responsibility and do our utmost to keep our husbands in the forefront of medical progress.

I hope I have made out my case, and that you will all agree with me that the Auxiliary is justifying its existence. What the future holds is in your hands. I, for one, believe in the Auxiliary. I believe it can and will be a power for good. I think it has a great field in preparing the ground to receive and apply the dicta of science for the amelioration of suffering, the conquering of disease and the establishment of health throughout our beloved country. I'm proud to belong to it, I'm willing to make sacrifices for it. Everything I have and everything I am comes from the medical profession, and to me it's a duty and a privilege to work for it. We are an Auxiliary to the noblest of all professions. Let us join in a united effort to pass on the torch.

#### **Woman's Auxiliary to the Norfolk County Medical Society.**

The Executive Board of this Auxiliary held its first meeting of the season at the home of

the President, Mrs. W. P. McDowell, on September 10th, with forty-five members present. After a most delightful social hour, a buffet luncheon was served, after which a short business session was held. This was opened with prayer by Mrs. McDowell. Mrs. Rawls read the Treasurer's report, after which the President outlined the work for the coming year, and defined the duties of the various Chairmen.

The following Committees were appointed:

Executive Committee: President, Mrs. W. P. McDowell; 1st Vice-President, Mrs. R. U. Burges; 2nd Vice-President, Mrs. Lewis Berlin; 3rd Vice-President, Mrs. Arthur Porter; Recording Secretary, Mrs. Rufus Kight; Assistant Recording Secretary, Mrs. Foy Vann; Corresponding Secretary, Mrs. Lockburn Scott; Assistant Corresponding Secretary, Mrs. Edward Starke; Treasurer, Mrs. Julian L. Rawls; Assistant Treasurer, Mrs. George A. Renn.

General Chairman for Portsmouth, Mrs. R. L. McMurran.

On September 19th Mrs. McMurran called a meeting of her division at the home of Mrs. J. D. Collins, at which fourteen were present. Mrs. McDowell welcomed the new members, and the following Committee Chairmen were appointed:

Club and other organization, Mrs. L. J. Roper; *Hygeia*, Mrs. Edward Gayle; Parent-Teacher, Mrs. R. M. Cox; Entertainment, Mrs. Hugh Parrish; Motors, Mrs. G. H. Carr; Birthday, Mrs. Elmore Jones; Telephone, Mrs. J. D. Collins; Sickmess and Bereavement, Mrs. S. J. Tabor; Army and Navy, Mrs. T. H. Wilkins; Booster, Mrs. E. T. Glover.

EMILY ALLEN,  
*Associate Publicity Chairman.*

At their quarterly meeting in Medical Arts Building, Monday night, October 7th, members of the Woman's Auxiliary of the Norfolk County Medical Society were pointed out new fields for study and constructive work in a talk on the medical auxiliary in other cities, by F. E. Burleson, director of the Norfolk Community Fund. Mr. Burleson's talk was the feature of this program and followed a full business session. About fifty members were in attendance. Mrs. W. P. McDowell, of Norfolk, president, presided.

The Publicity chairman, Mrs. W. Arthur Porter, announces that the Auxiliary now



seems more active than ever before. The next meeting will be after Christmas and will be in the form of a luncheon at the Nansemond Hotel at Ocean View.

## The Truth About Medicine

In addition to the articles enumerated in our letter of August 30, the following have been accepted:

Abbott Laboratories

Metaphen 2500

Hollister-Stier Laboratories

Bacillus Acidophilus Culture—Hollister-Stier

Acne Vaccine

Pertussis Bacillus Vaccine

Typhoid-Paratyphoid Prophylactic

Staphylococic Vaccine

Mead Johnson & Co.

Sobee

Sandoz Chemical Works, Inc.

Calcium Gluconate—Sandoz.

E. R. Squibb & Sons

Diphtheria Toxoid—Squibb, 30 c.c. vial.

### NEW AND NONOFFICIAL REMEDIES

**Ointment Ephedrine Compound.**—An ointment containing ephedrine—Lilly (New and Nonofficial Remedies, 1929, p. 166), 1 Gm.; menthol, 0.65 Gm.; camphor, 0.65 Gm.; oil of thyme, 0.0375 Gm.; hydrous wool fat, 5 Gm.; liquid petrolatum 24 Gm.; white petrolatum, to make 100 Gm. Eli Lilly & Co., Indianapolis.

**Lilly's Ephedrine Jelly.**—It is composed of ephedrine sulphate—Lilly (New and Nonofficial Remedies, 1929, p. 169), 1 Gm.; glycerin, 15 Gm.; tragacanth, 1.5 Gm.; eucalyptol, 0.1 Gm.; oil of wintergreen, 0.005 Gm.; oil of dwarf pine needles, 0.005 Gm.; water to make 100 Gm. Eli Lilly & Co., Indianapolis.

**Vioform-Ciba.**—Iodochlorhydroxyquinolin. — A substitution compound of anachlor-ortho-hydroxy-quinoline resulting from the introduction of one atom of iodine. Vioform-Ciba is used as an odorless substitute for iodoform. It is used as a dusting powder for application to wounds, ulcers, burns, exudative skin eruptions, etc. Ciba Co., Inc., New York.

**I-X Barium Meal.**—A mixture of barium sulphate U. S. P., 85 per cent; native aluminum silicate, 10 per cent; malted milk (malt extract-milk powder), 5 per cent; with a trace of saccharin. The preparation is used for roentgen-ray examinations, administered orally or by rectum. Dick X-Ray Co., St. Louis.

**Mead's Powdered Lactic Acid Milk Noncurdling No. 1 With Dextrin-Maltose.**—A modified milk product prepared by adding lactic acid, U. S. P., and a maltose-dextrin preparation to whole milk, heating, drying, and powdering. It is proposed for use in the feeding of infants when it is desired to prescribe an acidulated milk with a certain amount of added carbohydrate. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., September 7, 1929, p. 769.)

**Sobee.**—A mixture of soy bean flour 67.5 per cent and barley flour 9.5 per cent, to which has been added olive oil 19.0 per cent, sodium chloride 1.3 per cent, and calcium carbonate 2.7 per cent. Sobee is used as a substitute in the diet of infants who are sensitive to the proteins of milk. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., September 28, 1929, p. 989.)

### PROPAGANDA FOR REFORM

**The U. S. Pharmacopeial Convention.**—The Council on Pharmacy and Chemistry has issued a report call-

ing attention to the call for the appointment of delegates to the United States Pharmacopeial Convention. The Council urges all the organizations which are entitled to delegates to select persons who are noted for high ideals, for breadth of vision, for sane understanding, and for sound judgment, as well as for technical knowledge, men who are fitted by temperament and training to collaborate, to help by deed and by counsel to keep the United States Pharmacopeia a work in which American medicine and American pharmacy may feel a just pride; a work that fairly reflects modern medical and pharmaceutical science; a work that is conservative of the best of the past, and progressive, constructive, sensitive to the best of the new. The Council discusses the character of the work of revision and the men required for this work. It points out that the selection of drugs to be admitted to the Pharmacopeia must be determined primarily by their therapeutic usefulness; that these are medical matters, and therefore fall within the technical province of the physicians of the revision committee; and that the definite recognition of this principle in the last revision contributed notably to its success and should be continued. The Pharmacopeia should be a working manual of the present era and not an antiquarian museum. New drugs should be admitted freely when their therapeutic usefulness appears established, and some old drugs which have fallen into neglect or disrepute should be omitted. The policies of the present revision have earned for the Pharmacopeia "the sanction of the medical community and of the public" and may safely be continued. (Jour. A. M. A., September 28, 1929, p. 989.)

## Book Announcements

**Modern Methods of Treatment.** By LOGAN CLENDENING, M. D., Professor of Clinical Medicine, Lecturer on Therapeutics, Medical Department of the University of Kansas; and physician to St. Luke's Hospital, Kansas City, Mo. With chapters on special subjects by H. C. ANDERSON, M. D.; J. B. COWHERD, M. D.; H. P. KUHN, M. D.; CARL O. RICKTER, M. G.; F. G. NEFF, M. D.; E. H. SKINNER, M. D.; and E. R. DE WEESE, M. D. Third Edition. St. Louis. The C. V. Mosby Company. 1929. Octavo of 815 pages. Illustrated. Cloth. Price, \$10.00 net.

**Pettibone's Textbook of Physiological Chemistry With Experiments.** Revised and rewritten by J. F. McCLENDON, Ph. D., Professor of Physiological Chemistry, Medical School, University of Minnesota, Minneapolis. Fourth Edition. St. Louis. The C. V. Mosby Company. 1929. Octavo of 368 pages. Cloth. Price, \$3.75.

**Clinical Medicine For Nurses.** By PAUL H. RINGER, A. B., M. D., formerly Chief of Medical Service of the Asheville Mission Hospital, Asheville, N. C.; and on the staff of Biltmore Hospital, Biltmore, N. C. Third Revised Edition. Philadelphia. F. A. Davis Company. Octavo of 330 pages. Illustrated. Cloth. Price, \$3.00 net.

**Diseases of the Blood.** By PAUL W. CLOUGH, M. D. Associate in Clinical Medicine Johns Hopkins University. Harper's Medical Monographs. Harper & Brothers. New York and London. 1929. 12mo of 310 pages. Leatherette. Price, \$2.50.

**Methods and Problems of Medical Education.** (Fourteenth Series). The Rockefeller Foundation, 61, Broadway, New York, N. Y., U. S. A. 1929. Quarto. Paper. 207 pages plus Tables of Contents.

# Virginia Medical Monthly

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## Editorial

### Viosterol (Irradiated Ergosterol).

Practitioners may profitably review the present day understanding of the subject of irradiated ergosterol by perusing thoughtfully the article by Blunt and Cowan.\*

**THE POTENCY OF COD LIVER OIL IN CHRONIC MALADIES:** The time-known frequency of deficiency in bone growth of the child and the discovery of the last decade that sunshine and cod liver oil brought about recovery in rachitic disease, make the latter day studies on irradiation of foods of particular interest to general practitioners everywhere. This new work not only opens the window of hope in the feeding of the defective skeletal growth of the child but also suggests possibilities of importance in the other diseases. "Taking your daily dose of sunshine as you eat" may popularize an important discovery, if the phrase does possess a quality of exaggeration and inaccuracy of statement. The comment here is designed to direct attention to the subject and to bring about among our readers a perusal of the article herein referred to—it being a chapter from the book "Ultra Violet Light and Vitamin D" which is soon to be published by the University of Chicago Press.

The possible harm to children from the use of irradiated ergosterol, by receiving too large doses of Vitamin D in the form of irradiated ergosterol, is to be remembered, however. Toxic doses of irradiated ergosterol for children have been variously estimated as being from 0.1 gram to 2 grams. Some may be more sensitive to the substance than others. While Sobel and Claman report that they have in

several cases treated rachitic children with as much as 12 mg. daily for twenty days, without observing ill effects, Hess observed abnormally high blood calcium levels in normal infants and in two rachitic children in doses from 2.5 to 5 mg. Hess stated that high blood calcium is the chief sign of toxic reaction and in infants this sign is clinically accompanied or preceded by a decided failure of appetite. This "failure of appetite" furnishes the physician with a readily recognizable sign of over-dosage of irradiated ergosterol.

The Council on Pharmacy and Chemistry of the American Medical Association, last August, accepted irradiated ergosterol and designated the product as *Viosterol*. It has also provisionally described the preparation by adopting the phrases 100 D, 5 D, and so on, with the purpose of designating the Vitamin D potency of the various makes as multiples of the Vitamin D potency of cod liver oil as standardized by the Wisconsin Alumni Research Foundation.

Recognizing without question the importance of these new therapeutic facts in the treatment of deficiency diseases and feeling an urge to apply to patients the new things daily at hand, practitioners may well recognize the potency and toxicity of these products before making ill-advised employment of them in practice. The rational use of these products is of undoubted value. Careful reading and attentive consideration of the recent work in this field qualifies one the better to make use of irradiated food without harm but with benefit to the patients.

### Committee on the Cost of Medical Care at Work.

The members of the medical profession in this state, as in all other states of this country, have an interest in the work of a Committee organized for the study of the nationwide economic problem of the "Cost of Medical Care." This Committee, "The Committee on the Cost of Medical Care," organized to study the economic aspects of the care and prevention of illness, has offices in Washington, D. C., and has now been in operation for two years. The creation of the Committee, after a series of preliminary investigations, was completed in May, 1927, and since that time has been undertaking the investigation of the direct and indirect problems involved in the economic problems of the cost of medical

\*J. A. M. A., Vol. 93, No. 17, pages 1301-8.



care. The studies to be undertaken in attempting to arrive at conclusions upon this ever changing economic situation in the life of the nation seem to have been laid down as embracing:

a. Preliminary surveys of data showing the extent of disease and disability requiring medical services and of generally existing facilities for dealing with these conditions.

b. Studies on the cost to the family of medical services and the return accruing to the physician and other agents furnishing such services.

c. Analyses of specially organized facilities for medical care now serving particular groups of the population.

The financial assistance of certain foundations and agencies, such as the Twentieth Century Fund, Milbank Memorial Fund, Russell Sage Foundation, the Carnegie Corporation of New York, The Rockefeller Foundation, and the Julius Rosenwald Fund, has enabled this committee to secure the services of able men. One may understand in a measure the cost of such investigation when one knows that a total expenditure on the part of the Committee by January, 1930, is estimated to be about \$232,370. From this alone one may know the nature of the great task before the Committee as a five year period has been set as necessary to complete the study and make a report of the findings, conclusions and recommendations, looking to a solution of the cost of medical care.

The Research Staff is composed of an important and capable group.

*The Staff.*—Considerable time and care were used in the selection of a research staff. The first member of this group began work in February, 1928. From time to time other persons have been added to the staff. They include the following:

The head of the department of sociology, on leave of absence, from the University of Buffalo, whose term of service expired July 1, 1929.

An associate professor of public health, on leave of absence, from the University of Michigan.

A former instructor of economics from Columbia University.

A former executive secretary of a western city club engaged in municipal surveys.

A statistician, who is an assistant professor

of sociology, on leave of absence, from the University of Pennsylvania.

A former division chief of the United States Department of State. (This staff member was employed in April to take charge of the development of the program of public relations which was adopted at that time.)

A former member of the research staff of the Foreign Policy Association, who began work with the staff of the committee on August 1, 1929.

An associate professor of accounting in the University of Chicago, now employed on a part-time basis.

#### PREVALENCE OF ILLNESS AND OF PHYSICAL AND MENTAL DEFECTS IN THE UNITED STATES

The Committee naturally attempted an estimate, from collected data and from its own studies, of the present condition of the nation in the matter of ill-health. There were three main inquiries made. The first question was: "How often, on the average, are people hampered or definitely disabled by illness during a year?" The answer to this question was: "There would be about 130,000,000 cases of disabling sickness in the United States in each year, and, if non-disabling illnesses be added, this figure would more than be doubled."

The second question was: "How much time do people lose from their usual occupations because of disabling illnesses?" The answer was: "The 36,000,000 wage earners in the United States lose at least 250,000,000 work days per year, and the 24,000,000 school children lose 170,000,000 days per school year." These figures take in fully one-half of the population.

The third question was: "What diseases or group of diseases cause these cases of illness and this loss of time?" The answer to this question appears rather incomplete and does not deal fully with this important but recognized medical side of the problem. However, the closing paragraph of this report shows an understanding of the incompleteness of this particular inquiry.

The Committee is also undertaking other studies as they approach the real job of attempting to solve the cost of medical care in this country.

#### THE PRESENT STATUS OF STUDIES

##### *Studies Completed*

No. 1. "The Extent of Illness and of Phy-

sical and Mental Defects Prevailing in the United States—a Compilation of Existing Material.” It is not the intention of this study to provide new data on the extent of sickness, but to furnish a summary of existing data in convenient form, which will bring the information of the public up to a point from which the committee’s own studies will start.

No. 4. “A Survey of Statistical Data on Medical Facilities in the United States—a Compilation of Existing Material.” This study indicates the number and distribution of physicians, dentists, nurses and various other practitioners in the United States as well as the number of institutions and health agencies of various kinds, available for the treatment and prevention of the illnesses and defects described in the earlier study.

No. 11. “Medical Care for Thirty-four Thousand Workers and Their Families—A Survey of the Endicott Johnson Workers Medical Service.” The study deals with the medical services of the Endicott Johnson Corporation in New York State. It provides a descriptive account of the medical service, together with a discussion of its cost and adequacy. Certain features of the medical practice in surrounding communities are compared with those of the Endicott Johnson service.

No. 18. “Hospital Service for Patients of Moderate Means.” This study provides data on the special efforts made by certain hospitals in the United States and Canada providing special facilities and financial adjustments for those patients not accepting or not acceptable for charity service, but who, at the same time, cannot pay the rates usually charged for private service.

#### *Studies Under Way*

No. 5. “Surveys of the Medical Services of a Large City, a Small City, and a Rural Community.” A study of facilities in Philadelphia was begun in May, 1929. Data being gathered by the Hospital and Health Survey of Philadelphia and several national agencies, together with those made available by the committee’s study, will afford a complete picture of all medical and health facilities in one of the largest cities of the country.

A study of facilities in Shelby County, Indiana, has also been started.

No. 5a. “Irregular Types of Medical Practice.” A little field work has been done on this study in New Orleans, Louisiana. It is being

conducted through the summer in other parts of the country.

No. 6. “The Cost of Sickness, during a 12 Months’ Period, among Various Representative Population Groups, including the Incidence of Sickness.” Ten states and four additional cities have been covered. According to present plans complete schedules will be obtained from approximately 10,000 families showing their expenditures for all forms of care in sickness.

No. 6a. “The Cost of Sickness, during a 12 Months’ Period, among Policyholders of the Metropolitan Life Insurance Company, including the Incidence of Sickness.” This study was inaugurated July 1, 1928, by the Metropolitan Life Insurance Company. With the aid of field agents, attractive schedules in the form of calendars were distributed among policyholders. The company expects to obtain 100,000 schedules, each covering a period of at least six months.

No. 9. “Capital Investment and Income in Private Practice.” The American Medical Association is carrying on this study, and has already collected a considerable number of returns on income as well as on investment.

No. 10. “Capital Investment in Hospitals and Clinics.” With the aid of a special fund provided by the Rockefeller Foundation, and with the cooperation of the committee, Michael M. Davis is conducting this study. A professor of accountancy from the University of Chicago has been employed to have immediate charge of it.

No. 10b. “Bases for Financial Adjustments among Hospital Patients.” Visits are now being made among approximately 25 sample hospitals which are attempting to provide financial adjustments for persons of moderate means.

#### *Studies Being Planned for the Near Future*

No. 5b. “The Service of Pharmacy.” A committee of the National Drug Trade Conference has been appointed to cooperate with the Committee on the Cost of Medical Care in conducting this study. It is also possible that the aid of the Bureau of the Census may be available.

No. 5c. “The Organization of Medicine from a Functional Point of View.” This study will be a collaboration by a physician and an economist.

No. 9a. “Capital Investment and Income of Dentists in Private Practice.” Following the



example of the American Medical Association, it is hoped that the American Dental Association may undertake a study of capital investment and income among dentists. A special committee of the American Dental Association has been appointed to cooperate.

No. 17. "Existing Applications of the Insurance Principle to Illness and Accident in the United States." The plan for this study has been completed. It is hoped that an interested organization may be induced to supply part of the funds for this study and that another research agency may agree to undertake the work.

Following are some of the associated questions that are to be discussed by this Committee:

## I

*Preliminary surveys of data showing extent of disease and disability requiring medical services and of generally existing facilities for dealing with these conditions*

1. The extent of illness and of physical and mental defects prevailing in the United States—a compilation of existing material.

2. The prevalence of certain disorders which appear to be among the most serious causes of disability and inefficiency.

3. The proportion of persons, both adults and school children, not disabled, who are in need of medical service.

4. A survey of statistical data on medical facilities in the United States—a compilation of existing material.

5. Surveys of the medical services of a large city, a small city and a rural community.

5a. Irregular types of medical practice.

5b. The service of pharmacy.

5c. The organization of medicine from a functional point of view.

## II

*Studies on the cost to the family of medical services and the return accruing to the physician and other agents furnishing such services*

6. The cost of sickness, during a 12 months' period, among various representative population groups, including the incidence of sickness.

6a. The cost of sickness, during a 12 months' period, among policyholders of the Metropolitan Life Insurance Company, including the incidence of sickness.

6b. The cost of living in the United States, including detailed information regarding expenditures for medical service.

6c. The total cost of disease in the United States.

7. The influence of specialization on the cost of medical service.

8. The cost of adequate medical service for a family during a 12 months' period.

9. Capital investment and income of physicians in private practice.

9a. Capital investment and income of dentists in private practice.

10. Capital investment in hospitals and clinics.

10a. The relation between charges made to patients in hospitals and the actual cost of their care.

10b. Bases for financial adjustments among hospital patients.

## III

*Analyses of specially organized facilities for medical care now serving particular groups of the population*

11. Organized medical service in industry and in universities.

11a. Organized medical service in the United States Army.

12. Pay clinics and group clinics.

13. Recent developments in services rendered to persons not indigent by state, municipal, and county hospitals.

14. Visiting nurse societies.

15. School health service.

16. The extent of private medical service on a yearly basis.

17. Existing applications of the insurance principle to illness in the United States.

18. Hospital service for patients of moderate means.

## Our New President.

It is the part of wisdom in any scientific body when deliberating on the choice of a leader, to aim at two purposes; to honor one of their outstanding members, and to honor themselves in the choice of that member. It would seem that the Medical Society of Virginia has fulfilled both of these purposes in the choice of Dr. Charles R. Grandy as its President.

Dr. Grandy was born April 9, 1871, of stock on both sides, long resident in America. Successful attainment has marked the endeavors of his forebears in a number of different lines,

which it is unnecessary to enumerate, but it is pertinent to recall the fact that his grandfather on his mother's side, Dr. William Selden, was one of the outstanding practitioners of medicine in Norfolk, and Tidewater Virginia, for many years. Dr. Grandy's early education was acquired at the Norfolk Academy and after that at Bellevue Academy. On leaving these schools he entered the University of Virginia, and received his A. B. degree in 1891, and his M. D. in 1892. His post-graduate work was extensive and well planned. He served as intern in old Charity Hospital on Blackwell's Island (now the Metropolitan Hospital of New York), and the old Hudson Street Hospital. From there he went to Freiburg, where he studied under Ziegler, and Baumann; and, after taking a prolonged course there, studied under Wiegert in Frankfurt. It was Dr. Grandy's intention to teach internal medicine, but circumstances arose about the time he returned to this country which forced him to change his plans, and he entered the general practice of medicine in his native city. No physician in the past generation in this State has been considered of higher type or of greater intellectual attainments than has Dr. Grandy. His counsel has been so extensively sought by other physicians, and by institutions dealing with medical sociology, that it is unnecessary to dwell on his medical accomplishments.

Dr. Grandy, however, has not limited his interests to technical medicine, but has had a broad vision of the sociological needs and activities in his native State. In addition, he served during the World War, as a member of the Council for Tuberculosis, under the Council of National Defense, receiving his appoint-

ment to that position from the Surgeon-General of the United States Public Health Service. He represented the eastern district of Virginia on the Board of Appeals during almost the entire term of the war, and this service necessitated his giving up his practice for a prolonged period and living in Richmond. Shortly after the war, he was elected to the School Board of Norfolk, Virginia, and

very soon was made chairman of that body, which position he holds at the present time. As great as his services may have been in all of these activities, and especially in the field of secondary education in his native city, Dr.

Grandy will always be remembered as an outstanding leader in the fight against tuberculosis in the State, and elsewhere. He has served as a director of the National Tuberculosis Association, and represented the State of Virginia, at both the International Conferences which have

been held in this Country.

Many years ago, he established a clinic for the especial care of the tuberculous and pre-tuberculous individuals of his community; and

his camp at Cape Henry, which serves as a Preventorium for children who have been exposed to tuberculosis. His clinic was established very shortly after the Chest Clinic established by the Richmond Health Department, and his camp at Cape Henry was the first Preventorium established in the South.

The Tuberculosis Clinic of Norfolk serves both races, and it was early pointed out that the problem of tuberculosis in both races could not be separated, but must be handled in coordinate unity, and this he has accomplished. It is largely due to the fact that Dr. Grandy recognized early the interdependence of the problems of the two races, that both the mor-



CHARLES R. GRANDY, M. D.,  
President, Medical Society of Virginia.



tality and morbidity of tuberculosis in Norfolk have been materially reduced.

Dr. Grandy has fulfilled the ideals of a true citizen; he has performed his technical duties intelligently, and with kindness; he has been a citizen at large, taking part whenever he was asked in civic programs, never seeking an office, and never declining a duty when selected by his fellow citizens. Both Dr. Grandy, and the Medical Society of Virginia are to be congratulated.

L. T. R.

## News Notes

### Dedication of the New Medical Buildings at the University of Virginia.

The exercises of dedication of the recently completed group of new medical buildings, for the accommodation chiefly of the medical sciences, were held in Cabell Hall on the morning of October 22nd. Fifty-five official delegates from institutions and foundations in the United States and Canada were present. The address of presentation was made by the President of the University, and the address of acceptance by the Rector of the Board of Visitors. Greetings from the delegates were delivered by Dr. Wilburt Cornell Davison, Dean of the School of Medicine of Duke University. A statement was read by the Dean of the Department of Medicine, introductory to the presentation of a resolution inscribed on parchment from the Faculty of Medicine of the University of Virginia. The resolution reads:

"On the occasion of the formal opening of an impressive group of new medical buildings the Faculty of Medicine present this testimonial to

EDWIN ANDERSON ALDERMAN,

President of the University of Virginia, in recognition of his distinguished service to Medical Education. Through his devoted labors the material equipment of the Medical School of the University of Virginia has been greatly enlarged, and by his wisdom and foresight the processes of instruction and investigation have been notably quickened. In an era of extraordinary accomplishment in the science and art of medicine he has added to the efficiency and range of an old and vital institution in the life of the State and Nation. The Faculty of Medicine heartily record their profound appreciation of his far-sighted leadership and gratefully acclaim his signal contribution to the advancement of medical science.

In testimony whereof they have subscribed their names on this the twenty-second day of October, nineteen hundred and twenty-nine, in the one hundred and tenth year of the University."

The principal address of the day was given by Dr. Ray Lyman Wilbur, Secretary of the Department of the Interior. Dr. Wilbur out-

lined the responsibilities of the medical profession in meeting the changing economic and social conditions.

At one o'clock a luncheon was served in the Memorial Gymnasium for delegates, invited guests, members of the governing boards, University professors, alumni, members of the Medical Society of Virginia, and members of the Woman's Auxiliary, a total of about six hundred attending. The speakers on this occasion were Dr. William Holland Wilmer, of Johns Hopkins University; Dr. John Shelton Horsley, of St. Elizabeth's Hospital, Richmond; and Dr. David Russell Lynman of the Gaylord Farm Sanatorium at Wallingford, Conn.

Following the luncheon, nine different clinics were held in the new Medical Building in co-operation with the State Medical Society. The clinic on mental diseases was given by Dr. J. S. DeJarnette, Staunton; Dr. J. H. Bell, Lynchburg; Dr. G. A. Wright, Marion; Dr. Hugh C. Henry, Petersburg; Dr. G. W. Brown, Williamsburg; Dr. J. K. Hall, Richmond. Dr. E. G. Gill, of Roanoke, conducted a clinic on diseases of the ear, nose and throat. A clinic on neurosurgery was held by Dr. C. C. Coleman, of Richmond, and one on goitre by Dr. Stuart McGuire. A chest clinic was given by Dr. W. E. Brown and Dr. F. B. Stafford, of the Blue Ridge Sanatorium, and by Dr. Fletcher Wright, of Petersburg. Medical clinics were held by Dr. W. B. Porter, of Richmond, on cardiovascular diseases, by Dr. W. B. Martin, of Norfolk, on gastro-intestinal diseases, and by Dr. Frank D. Wilson, of Norfolk, on Pediatrics.

From three to six o'clock a tour of inspection of the laboratories and hospital was conducted with the aid of student guides. Tea was served from five to six in the laboratory of Physiology.

At the evening session, held jointly with the Medical Society of Virginia, addresses were given by the President of the Society, Dr. J. Bolling Jones; by Surgeon-General Hugh S. Cumming, of the U. S. Public Health Service; and by Dr. Charles R. Stockard, Professor of Anatomy in the Cornell Medical School, New York City.

H. E. J.

### Our Charlottesville Meeting

Of the State Society, though a thing of the past, will not soon be forgotten by those who

were fortunate enough to attend. The local committee did everything possible for the comfort and pleasure of members and the dedication of the new medical buildings on the first day added much to the interest of this occasion. Following the dedication exercises in the morning, a lovely luncheon was served in the Memorial Gymnasium by the University. To this were invited all visitors, members and ladies accompanying them. The gymnasium had been especially decorated for the occasion and presented the appearance of a banquet hall. The barbecue on Wednesday afternoon not only provided good things to eat but a wonderful occasion for getting together socially. These entertainments added much to the pleasure of those attending.

In addition to some fifty or more delegates who came especially for the dedication exercises, there was a registered attendance of 579 physicians, over a hundred ladies, and exhibitors. The clinics, scientific and commercial exhibits were all of a high order and interesting. The Woman's Auxiliary had its annual meetings and, in addition to the entertainments above named, the ladies were tendered a luncheon on Wednesday at Blue Ridge Club.

Dr. William Gerry Morgan, Washington, D. C., President-elect of the American Medical Association and for many years a member of our Society, was in attendance. He and our retiring president, Dr. J. Bolling Jones, of Petersburg, were made honorary members of the Society.

Dr. Charles R. Grandy, Norfolk, succeeded to the presidency, and Dr. J. Allison Hodges, Richmond, was elected president-elect. Drs. R. L. Raiford, Franklin; J. A. Gibson, Leesburg, and F. H. Smith, Abingdon, were elected vice-presidents. A full report of the meeting appears in our minutes elsewhere in this issue. Norfolk was selected as our 1930 place of meeting.

The vote of thanks recorded in our minutes is inadequate to express the appreciation of our members for the cordial and pleasant reception given us by the University and the Albemarle County Medical Society.

#### **The Virginia Pediatric Society**

Held its annual luncheon and round table discussion in Charlottesville, October 23rd. On this occasion, Dr. J. Buren Sidbury, Wilmington, N. C., read a paper on "Transfusion in Infancy and Childhood." The following officers were elected for the ensuing year:

President, Dr. Franklin D. Wilson, Norfolk; vice-president, Dr. William B. McIlwaine, Petersburg; secretary, Dr. J. B. Stone, Richmond.

#### **The Virginia Hospital Association**

Held its annual meeting in Charlottesville, October 22nd, the first day of the State Society meeting. Dr. J. M. Shackelford, Martinsville, president, was in the chair, and an interesting program was had. Dr. J. E. Harris, Winchester, was elected president for the ensuing year; Miss Virginia Thacker, Roanoke, first vice-president; Miss Lucille Garrett, Roanoke, second vice-president; and Dr. R. L. Raiford, Franklin, secretary-treasurer.

#### **The American College of Surgeons,**

At its annual convocation in Chicago, last month, elected Dr. C. Jeff. Miller, of New Orleans, to the office of president-elect. Surgeon-General Merritte W. Ireland, of the U. S. Army, Washington, D. C., was installed as president.

#### **Dr. Southgate Leigh,**

Norfolk, Va., was elected a member of the board of governors of the American College of Surgeons, at its recent convocation in Chicago.

#### **Dr. G. F. McGinnes,**

Director of laboratories for the Virginia State Department of Health and the Richmond City Health Bureau, has been granted a six months' leave of absence without pay in order that he may make a study of the New York City health bureau. He will pursue his investigations with Dr. George Ramsey, of Johns Hopkins University.

Miss Adah Corpening, assistant director of laboratories, will be in charge of Dr. McGinnes' work during his absence.

#### **Students' Loan Fund.**

The Lewis Z. Morris Memorial Fund of \$10,000, the income of which will provide loans for worthy students at the Medical College of Virginia, has been established by Seymour A. Strauss to perpetuate the memory of Mr. Morris, who for more than twenty-five years ably contributed to the upbuilding of the institution through membership on its board of visitors. Mr. Strauss is a brother of Mrs. Morris.

#### **Dr. R. W. Garnett,**

Danville, Va., has been reappointed City Health Officer of Danville, for another two-



year period. Dr. Garnett has held this office since December 1, 1918.

**Dr. Walter K. Slack,**

Who graduated from the University of Virginia School of Medicine in 1927, recently returned from Europe, where he spent some time studying. Due to the death of his father, he has resigned his residenceship at the Presbyterian Eye, Ear and Throat Charity Hospital, Baltimore, Md., and has returned to his home at Saginaw, Mich., to take up practice which will be limited to diseases of the ear, nose and throat.

**Dr. William R. Weisiger,**

Richmond, was one of four Richmonders elevated to be knights of the court of honor, at the biennial meeting of the Supreme Council, Ancient and Accepted Scottish Rite, Southern jurisdiction, recently held in Washington.

**The American Academy of Ophthalmology and Oto-Laryngology**

At its annual meeting in Atlantic City, N. J., October 21st-25th, elected Dr. William H. Wilder, Chicago, president for the ensuing year. He succeeds Dr. Harris P. Mosher, of Boston. Chicago was selected as the 1930 convention city.

**Have You Responded to Roll Call?**

Although many communities have been soliciting membership to the Annual Roll Call of the American Red Cross, the official time set for this work is from Armistice Day to Thanksgiving Day, November 11 to 28.

A large Chapter enrollment means direct benefit to the community. Out of each dollar membership in the American Red Cross, fifty cents is retained by the Red Cross for expenditure in behalf of the community in which enrollment is made; the other fifty cents goes to National Headquarters and is spent in national and international work. Each year thousands of dollars are expended by National Headquarters for relief in disasters for which no general appeal for funds is made to the public. Such help is only possible because of the support of a large membership. Join!

**The Southern Medical Association**

Is meeting in Miami, Fla., in a few days—November 19-22—under the presidency of Dr. Thomas W. Moore, of Huntington, W. Va. All members of our State Society are invited. The scientific program, with its twenty sections, the clinics to be presented by the Dade County Medical Society, the especial enter-

tainments and sports, to say nothing of the lovely Florida climate, offer special attractions for every one. After the meeting will come the trip to Cuba for those who wish to take a vacation at this season. Reservations for this trip have to be secured by writing to S. M. A. headquarters, Empire Building, Birmingham, Ala.

**Married.**

Dr. Robert Massie Page, formerly of Batesville, Va., now of Washington, D. C., and Miss Pauline Johnson, Schuyler, Va., at Old Bruton Parish Church, Williamsburg, October 5.

Dr. Houston Robinson Farley and Miss Mary Keister, both of Pulaski, Va., October 13.

Dr. Charles Yeatman Griffith, Hague, Va., and Miss Louisa Carr Tayloe, of Washington and Westmoreland County, Va., October 24. Dr. Griffith is a member of the class of '29, Medical College of Virginia.

Dr. Samuel Leonard Cooke, of the class of '29, Medical College of Virginia and now at Walter Reed General Hospital, Washington, D. C., and Miss Helen Louise Anderson, formerly of Sandy Level, Va., October 17.

Dr. John Cotten Tayloe, Washington, N. C., and Miss Nellie Holt, Smithfield, N. C., September 9.

**Dr. Charles P. Howze,**

For several years of Danville, Va., has moved to Washington, D. C., and has opened offices in the Washington Medical Building, 1801 Eye Street, Northwest. He is limiting his practice to genito-urinary surgery.

**Dr. Giles Sydnor Terry,**

An alumnus of the Medical College of Virginia and formerly connected with Tucker Sanatorium, Richmond, but now on the staff of the American Hospital, Paris, made a hurried trip to the United States early in October and spent two days at his old home in Halifax County, Va., before returning to France.

In July Dr. Terry was decorated by King Alexander of Serbia, who conferred upon him the order of Commander of the Royal Order of Saint Sava.

**Dr. Emily Gardner,**

Formerly with the Virginia State Health Department, recently received a fifteen months' appointment to the Babies' Hospital, 167th Street and Broadway, New York, N. Y., and expects to be there until January, 1931.

### **Doctors Launch Health Examination Campaign.**

A new precedent has been established in the medical profession with the formal announcement in October of the opening of a drive for public health education to be conducted by the private physicians of Greater New York. The ten thousand practitioners represented by the Five County Medical Societies of Greater New York are personally promoting a campaign for improving public health such as has heretofore been conducted only by government or institutional bodies. The purpose of the campaign is to awaken the public to the value of preventive measures in maintaining health, in the role of the physician as a guardian against, as well as a curer of, disease. Efforts will be concentrated during the month of November on teaching the importance of a periodic health examination as one of the chief means of warding off sickness or checking incipient diseases.

The Department of Health is supporting the project, which is also enlisting the cooperation of public schools; welfare, community, and social organizations; and public information organs such as the radio, the press, and the moving pictures.

### **The American Association of Obstetricians, Gynecologists and Abdominal Surgeons,**

At its annual meeting recently held in Memphis, Tenn., decided to hold its 1930 convention at Niagara Falls, and elected Dr. Edgar Van der Veer, of Albany, N. Y., president. Dr. James E. Davis, Ann Arbor, Mich., was re-elected secretary.

### **Dr. J. P. Monroe,**

Sanford, N. C., was shot on the streets of that city, early in October, by a man supposed to be insane. Several bullets took effect but it is believed that Dr. Monroe will recover.

### **Infantile Paralysis.**

The United States Public Health Service has stated recently in a conference with State health officers that throughout the greater part of the country it may be expected that about one paralytic case of infantile paralysis per 100,000 population will occur between the first day of December and the first day of June each year, and in the other six months, about 4 to 14 cases. The maximum incidence is reached in mid-September. Every help should be given to the medical profession and the public to aid in the prompt and accurate diagnosis of the cases. Early treatment should cer-

tainly be under the control of the local physician.

Pamphlets are available for distribution to physicians to refresh their memories on the early suspicious and characteristic signs of the disease. A useful pamphlet on muscle training is also available as a reprint from the U. S. Public Health Service, Washington, D. C.

### **Dr. N. J. Gould,**

Who practiced for a time in Norfolk, Va., but has been in New York for the past three or four years, has been appointed assistant visiting physician in ophthalmology at Fordham Hospital, New York.

### **Dr. Joseph B. DeLee,**

Chicago, was honored with a special dinner at Drake Hotel, that city, on October the 28th, in celebration of his sixtieth birthday. On this occasion, his portrait was also presented to the Northwestern University.

### **The National Tuberculosis Association Completes Twenty-Five Years of Service.**

These are briefly some of the visible accomplishments of this twenty-five-year-old movement. In 1904 there were 115 sanatoria in the United States with an aggregate bed capacity of 9,107, while on January 1, 1929, there were 618 tuberculosis hospitals and sanatoria with a combined capacity of 73,695 beds. There were no tuberculosis dispensaries or clinics in 1904, but in 1928 there were 3,671. The first open-air school was established in 1908 and there are now at least 1,000 of such schools for children. Twenty-five years ago, there were not more than ten public health nurses who devoted a definite part of their time to tuberculosis work while now there are 7,115. There are eighty-three preventoria for children. There is a State association in every State and local associations in the larger cities and counties numbering 1,454.

There are still over 50,000 living cases of tuberculosis in this country and in 1928 there were 93,000 deaths. There are far too many patients being admitted to sanatoria in the late instead of early stages of the disease. The aim of the National Tuberculosis Association is to reach that goal when tuberculosis shall be reduced to a comparative minimum. The funds derived from the sale of Christmas seals aid this work. These are to be put on sale shortly.

### **Notice.**

Dr. Albert Allemann, of the Army Medical Museum, Washington, D. C., asks us to print



the following notice: "I wish to inform the subscribers of the *Medical Interpreter* that I resigned as editor of this publication in December, 1928, and that I am no longer responsible in any manner for the actions of its promoters."

**Dr. Herbert W. Lewis,**

Dumbarton, Va., is spending several months in New York City, where he is taking special work in internal medicine and pediatrics, at the New York Polyclinic School and Hospital.

**The Seventh District (N. C.) Medical Society,**

At its meeting in Charlotte, early in October, elected Dr. John H. Tucker, of Charlotte, president for the ensuing year, and Dr. C. H. Pugh, of Gastonia, secretary-treasurer.

**Heads Pediatric Department at Tulane.**

Dr. Robert A. Strong, of Pass Christian, Miss., an alumnus of Tulane University, New Orleans, La., was recently appointed head of the department of Pediatrics at that school, and took up his duties there this Fall. He succeeds Dr. L. R. De Buys.

**Dr. Thomas J. Tudor,**

Norton, Va., visited his parents at Critz, Va., on his way to the Charlottesville meeting of the State Society, last month.

**Dr. J. C. Bodow,**

Hopewell, Va., has just had conferred upon him an honorary membership by the Spanish-American War Veterans and the Ladies' Auxiliary of that organization.

**The American Public Health Association,**

At its annual meeting in October, elected Dr. Hugh S. Cumming, Surgeon-General of the U. S. Public Health Service, president-elect, and Mr. Homer N. Calver, of New York City, was re-elected executive secretary. Dr. Albert J. Chesley, St. Paul, Minn., succeeded to the presidency.

**Dr. Carroll G. Bennett,**

Of the class of '28, Medical College of Virginia, who later served an internship at Johnston Willis Hospital, Richmond, has located in Martinsville, Va., where he is engaged in general practice.

**The State Colony for Epileptics and Feeble-minded**

Has issued its twentieth annual report for the year ended June 30, 1929. The report which tells of the progress of the institution, also carries recommendations for increased accommodations owing to the tremendous in-

crease in commitments to this institution. It states that eugenic sterilization at this institution has proceeded in an eminently satisfactory manner. Beginning this work in November, 1927, under the State laws, 135 cases had been sterilized to the last date of this report and there had been no authentic report of any unfavorable result. It is stated that practically all of these cases have now left the institution and only four of them have had to be returned for further training and discipline.

The daily average of patients actually at the Colony during the year was 818 and the daily average including those on furlough was 886.

**The South Piedmont Medical Society**

Is to hold its regular semi-annual meeting in South Boston, Va., November the 26th, under the presidency of Dr. I. Keith Briggs, of that place. In addition to volunteer papers, there will be a symposium on "Diseases of the Gall-Bladder," and this will be discussed as follows:

"Etiology," Dr. J. J. Neal, Danville;

"Bacteriology and Pathology," Dr. J. A. Owen, South Boston;

"Medical Treatment," Dr. D. P. Scott, Lynchburg;

"Surgical Treatment," Dr. R. H. Fuller, South Boston.

Dr. George A. Stover, South Boston, is secretary-treasurer of this Society.

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## Obituary Record

**Dr. Emory E. Bell,**

Chincoteague, Va., was born at Berlin, Md., December 22, 1874. He graduated at the Berlin High School, later taught in the Worcester County, Maryland, schools, was clerk for Registrar of Wills for Worcester County, was deputy tax collector for several years. He graduated in medicine at the College of Physicians and Surgeons, Baltimore, in 1904, and

during his professional life practiced at Marion, Maryland, Selbyville, Delaware, and Chincoteague, Va. At the last named place he was for a number of years Acting Assistant Surgeon in the U. S. Public Health Service. He had been a member of the Medical Society of Virginia for some time.

Dr. Bell was a Mason, member of Accomack Lodge No. 243 A. F. and A. M., Chincoteague, Va. He died at the Peninsula General Hospital, Salisbury, Md., Saturday, September 14, 1929, following an illness of two years, of cardio-vascular disease. He is survived by his widow, Mrs. Rose Clayville Bell, one brother, Mr. Raymond M. Bell and a sister, Mrs. Charles F. Matthews, Chincoteague, Va., and one sister in Baltimore and one in Berlin, Md.

The Accomack County Medical Society adopted the following resolutions on his death:

He did not believe in sham or hypocrisy but was willing and ready to contribute his share to the relief of suffering humanity. THEREFORE,

BE IT RESOLVED, That the Accomack County Medical Society wishes to express a deep sense of loss in the death of a faithful member, Dr. Emory E. Bell, and to extend its sincere and heartfelt sympathy to his widow and the other members of his family.

W. M. BURWELL, *Chairman*,  
JOHN W. ROBERTSON,  
*Obituary Committee.*

### Dr. William Frank Ferguson,

Formerly of Salem, Va., but for some years of Premier, W. Va., died at his sister's home in Salem, October the 4th, after having been in bad health for some time. He was fifty-five years of age. After graduating at Salem College, he attended the Medical College of Virginia, from which he received his diploma in medicine in 1900. He saw service in the Spanish-American War as a member of the hospital corps. Dr. Ferguson had been a member of the Medical Society of Virginia since 1904, and was also connected with a number of other medical organizations.

### Resolutions on Death of Dr. Swimley.

In the sudden death of Dr. Asbury C. Swimley, the Medical Staff of the Winchester Memorial Hospital records the loss of one of its most beloved and valued members. He brought to the meetings of the Staff an unbounded optimism and enthusiasm in his search for knowledge, and always participated in the scientific discussions with a mind ever receptive.

Standing always for good feeling and good fellowship, and for close cooperation in the many vital matters confronting the profession and the community, he did much to increase the usefulness of the Staff and was untiring in his efforts for the relief of suffering humanity. In his quiet and unassuming way, his influence exercised, was made doubly

effective by the confidence and affection of each member of the Staff.

His departure leaves a vacancy in our ranks that will remain unfilled, but the affectionate regard of his fellow members will remain as an evidence of our esteem for him.

WHEREAS, God in His infinite wisdom has seen cause to remove from our midst, our friend and fellow physician, Doctor Asbury C. Swimley, therefore, be it

RESOLVED, That this tribute of respect be spread on the minutes of the Staff Meeting of the Winchester Memorial Hospital, that a copy be sent to the family, and that they be published in the VIRGINIA MEDICAL MONTHLY.

GEO. SNARR,  
E. C. STUART,  
C. R. ANDERSON.

### Resolutions on Death of Dr. Klipstein.

WHEREAS, God in His infinite wisdom and mercy has called to rest Dr. George Taylor Klipstein, for many years a leading member of the Medical Staff of the Alexandria Hospital, be it

RESOLVED: That in the death of Dr. George T. Klipstein the Staff and the hospital lost a sincere friend and skilful physician.

RESOLVED: That the sympathy of the Staff is hereby tendered the widow and family of the deceased.

RESOLVED: That these resolutions be spread upon the minutes of the meeting and a copy published in the local paper and in the VIRGINIA MEDICAL MONTHLY.

(Signed)

LLEWELLYN POWELL,  
S. B. MOORE.

### Dr. Veolo Oglesby Caruthers,

Of Ferrell, Va., died at a Richmond Hospital, on October the 4th. He was seventy-six years of age and had graduated in medicine from the Medical College of Virginia in 1879. He was well known professionally, socially and politically all through the Northern Neck section of the State. His second wife and several children, one of them Dr. V. O. Caruthers, Jr., survive him.

### Dr. William Wolfe Golden,

Elkins, W. Va., died suddenly in his private office at the Davis Memorial Hospital in that place, October 14, death being due to a heart attack. He was for several years secretary of the West Virginia State Medical Association and its president for the year 1907-8. He was sixty-three years of age and had graduated in medicine from New York University Medical College in 1892. His wife and two children, one of them Dr. B. I. Golden, of Elkins, survive him.


### Dr. Oscar W. Holloway,

Durham, N. C., died suddenly at his home on October 2nd. His death was due to heart disease. Dr. Holloway was fifty-four years of age and had graduated in medicine at the Medical College of Virginia, Richmond, in 1901.



---

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WHEN sugar is digested, it is absorbed from the intestines and carried to the liver. From the liver it is converted into glycogen, an animal starch. Later on the glycogen is passed on and stored as glycogen in the muscles. It is in the muscles that sugar is burned to keep the body warm. The muscles are the fire-box of the body.

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61st Annual Meeting, Medical Society of Virginia in  
Norfolk, Fall 1930

# Virginia Medical Monthly

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Vol. 56, No. 9.  
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RICHMOND, VA., DECEMBER, 1929

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## JELLIED VEGETABLE SALAD (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoon Knox Sparkling Gelatine	7	6	....	....	....
1/4 cup cold water, 1 1/2 cups hot water	....	....	....	....	....
1 teaspoonful whole mixed spices	....	....	....	....	....
1/2 teaspoon salt, 1/4 cup vinegar	....	....	....	....	....
1/2 cup chopped cabbage	50	1	....	3	....
1/2 cup chopped celery	60	1	....	2	....
1/2 cup canned green peas	40	1	....	4	....
1/4 cup cooked beets, cubed	40	1	....	3	....
Total	10	12	....	88	....
One serving	2	....	....	2	15

Soak gelatine in cold water for five minutes. Bring to boil water, salt and spices. Pour on gelatine to dissolve it and add vinegar. When jelly is nearly set, stir in the vegetables, pour into mold and chill until firm. Unmold on lettuce and serve with salad dressing. Garnish with sprig of parsley or strip of pimento.

## JELLIED CHICKEN IN CREAM (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoonful Knox Gelatine	7	6	....	....	....
1/4 cup cold chicken broth or water	....	....	....	....	....
1 1/4 cups boiling chicken broth, fat free	....	....	....	....	....
1/2 teaspoon salt	....	....	....	....	....
Pinch pepper	....	....	....	....	....
1 cup cooked chicken, cubed	125	24	20	....	....
1/4 cup cream, whipped	55	1	22	1.5	....
Total	31	44	1.5	526	....
One serving	5	7	....	88	....

Soak gelatine in cold liquid for five minutes and dissolve in hot broth. Season with salt and pepper and chill until nearly set. Fold in chicken and whipped cream. Turn into molds and chill until firm. Serve on lettuce or garnish with parsley and strip of pimento.

**If** you agree that recipes like the ones on this page will be helpful in your diabetic practice, write for our complete Diabetic Recipe Book—it contains dozens of valuable recommendations. We shall be glad to mail you as many copies as you desire. Knox Gelatine Laboratories, 441 Knox Ave., Johnstown, N. Y.

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Official Organ of the Medical Society of Virginia

Vol. 56, No. 9.  
WHOLE No. 930

RICHMOND, VA., DECEMBER, 1929

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\$2.00 A YEAR

## RELATION OF THE MEDICAL PROFESSION TO THE PUBLIC.\*

By HUGH S. CUMMING, M. D., Washington, D. C.  
Surgeon General, U. S. Public Health Service.

PRESIDENT ALDERMAN: FELLOW ALUMNI:  
FELLOW MEMBERS OF THE MEDICAL SOCIETY OF VIRGINIA: LADIES AND GENTLEMEN:

It is doubtful if any recent alumnus ever returned to his Alma Mater without feeling a lump in his throat and a tugging at his heart-strings. How much deeper then are the emotions of one who thirty-six years after graduation finds himself back in this hallowed University in all of her physical beauty, as he recalls her moral and intellectual worth, her struggles and accomplishments through years of financial poverty, her wealth of tradition and history, her children who have for a century so well done their part in every sphere in which their State, their country, the world needed them!

She has never been the jealous mistress constantly demanding evidences of affection but rather the loving mother, content, too content at times, in the success of her offspring, requiring nothing more of them than that they be worthy sons, serene in her consciousness that they had imbibed and assimilated knowledge and principles that would carry them to honorable success.

Life was simple in those years of the early nineties both in the outside world and here. Virginia had not yet recovered from the holocaust of war and reconstruction.

A large proportion of students in the professional schools were struggling through upon borrowed or hardly earned money and the wealthy man was rather marked, if not handicapped. Social and financial position, even accident of birth, counted but little. In no other place has there ever been a truer rule of aristocracy in the original and best meaning of the word. Most of us through necessity were

acutely aware that medical "art was long and time was fleeting," so the average medical man led the simple life of a hard student.

The University herself was in no whit better financial condition than her children. Philanthropy had not stretched her welcome hand hitherward and the impoverished State was dissipating her too small resources among many institutions instead of concentrating energy upon her crowning intellectual glory.

In view of her limited financial resources it seems miraculous that her engineering, chemical and medical schools, with so little physical equipment, could have turned out such numbers of professionally well equipped graduates until one remembers those intellectual giants on the faculty of those years. No normal man could have lived for several years even in casual contact with such men as Noah K. Davis, John B. Minor, Francis Smith, John Mallet, Billy Thornton and others without being intellectually and morally lifted onto a higher plane.

But what of the Medical School?

Few medical schools of the time had a more splendid galaxy of teachers than Towles, Mallet, Barringer and Tuttle. The comparative thoroughness of their teaching was demonstrated over and again by the standing of her graduates both at home and abroad in competitive examinations and in practice. Yet how restricted then was the intellectual diet compared with the elaborate menu set before the medical student of today! Anatomy was thoroughly taught by lectures, demonstrations and dissections. No laboratory credits were required in medical chemistry and physiology, and, indeed, the physical equipment, even for those days, was inadequate. There was little or no clinical material for use in the teaching of internal medicine and operative surgery; bacteriology, pathology and histology were taught by lectures and a few demonstrations; gynecology by lectures, and obstetrics by lectures and demonstrations on a manikin; these and a short course in hygiene comprised the

\*Address at the dedication of the new Medical Buildings, University of Virginia, and opening exercises of the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22, 1929.

two years of study required for graduation after 1892. Previous to that year, graduation after one year in residence was permitted.

Although post-graduate hospital work was encouraged, a large number of graduates who subsequently became leaders in their profession were compelled to go immediately into practice.

But before contrasting the men and school of that time with the finished graduates and the richly endowed institution of today with its splendid laboratory which we have just dedicated and its hospitals and research facilities, the younger generation might well reflect upon the limited field of medical science of that period. I am confident that in the earlier days the medical student derived a much greater proportion of existing knowledge than it is now possible for him to acquire in four or five years of study.

The last century was a period of unparalleled progress in the world's history. Marked advances were made in government, in industry, in transportation, but above all in the field of science and its application for the benefit of mankind. Great and revolutionary as were the effects of steam transportation, the telegraph, telephone, and electric light upon our civilization, equally great was the effect upon humanity of the increased knowledge of the causes of disease, its methods of spread, prevention, and cure. Especially was this true of the last two decades of the century. While there had been an advance in empirical therapeutics and in the technique of surgery, until then little more was known in regard to the etiology and epidemiology of disease than had been known in all the years preceding.

Suddenly, like the turning of a switch, Pasteur dispelled the ignorance of centuries by his demonstration that specific diseases are produced by specific organisms, and Koch, by the development of solid culture media and aniline dyes, made possible the identification of the pathogenic organisms of such diseases as tuberculosis, tetanus, cholera, diphtheria, and glanders.

Immunization against communicable diseases has been the subject of research since 1880 but the last decade of that century stands out as the period in which serum diagnosis and treatment had their origin. The study of the effect of the toxins contained in cul-

ture media in which tetanus and diphtheria bacilli were grown led to the study of immunity and the discovery of the antitoxic action of the sera of immunized animals. The facts thus established were put to practical use by the introduction of tetanus antitoxin in 1890 and of diphtheria antitoxin in 1894. In that year, also, the laws of passive immunity were shown to hold in immunizing against living organisms, and the practical application of protective inoculation against cholera, plague and, later and more important, typhoid fever followed. Two years later, still another aid, the serum diagnosis of disease, was developed.

An epoch making discovery in the realm of physics which added to the brilliancy of the decade was that of the X-rays by Roentgen in 1895, together with their use in diagnosis and treatment. This later led to the study and use of the ultra violet rays.

But brilliant as were those achievements, other important medical discoveries were made in the same period which profoundly affected the happiness of the human race inhabiting the warmer regions of the world.

Theobald Smith's pioneer discovery of the insect transmission of cattle fever was followed by Manson's demonstration of the transmission of filariasis by mosquitoes, by Ross' brilliant incrimination of the anopheles in malaria, and by Reed's confirmation of Finlay's theory of yellow fever transmission by the *stegomyia* mosquito. No less important was the change in our knowledge and conception of neuropathology and the relationship between mental and physical conditions.

Scarcely less significant were the advances during the following twenty-five years, which initiated the use of dark field illumination, the arsenical derivatives in the treatment of the spirochaetal diseases; the knowledge of the cause and prevention of goitre, of the function of the internal secretions and their uses, the microscopic examination of the eye-grounds, the use of toxin-antitoxin, the role of the disease carrier, and the matter of fact acceptance of the radio, aviation, automobiles, and the marvels of synthetic chemistry.

At the beginning of the last century, transportation and communications were difficult and expensive, the use of steam and electric power unknown. Each country, State and



community depended largely upon its own resources. The necessities in food, clothing and implements were provided locally and the household in general was more or less self-supporting. As President Hoover so aptly described the situation, the farmer raised 80 per cent of his necessities and depended upon the outside for only 20 per cent.

There are among us those who remember the local shoemaker, the blacksmith, the carriage builder, the carpenter who builded with locally produced material, and the table loaded with home grown food products. The life of the average man in this country was simple and individualistic, each community more or less self-contained. The conception of the role of government was that of providing for the common defense and protecting life and property against violence and oppression, beyond which the individual was expected to work out his own destiny. Cooperation beyond this limitation was restricted to emergencies.

The development of machinery and transportation facilities and means of communication have revolutionarily changed these conditions and necessitated group action and interdependence, governmental and otherwise. We no longer depend upon individual ownership or initiative for transportation, but upon cooperative action of necessity regulated by government. We depend no longer upon our own locality for food and clothing. The whole world contributes to the home and table of the average man of this generation, and cooperation has been necessary to bring about this result.

No less marked has been the result of the application of science to the practice of medicine and the change in relationship which existed in the past between the public and the physician. The armamentarium of the physician of only a generation or so ago consisted of a few instruments and somewhat limited professional knowledge, supplemented often, however, by a knowledge of the hereditary and environmental factors and the mental and physical history of the patient which, I am inclined to think, not infrequently made up for his deficiency in technical knowledge.

The application of the increase of knowledge in all of the fields of science to the practice of medicine and sanitation has of necessity radically changed this condition.

As Sir Clifford Albutt has expressed it: "It

is obvious that the results of such advances prescribe for the clinical physician methods which cannot be pursued without expert assistance; a physician engaged in busy practice cannot himself undertake even the verifications required in the conduct of individual cases. Skill in modern laboratory work is as far out of reach of the untaught as performance on a musical instrument. In spite, therefore, of the tradition which has persisted from Aristotle to Herbert Spencer it is formed upon us \* \* \* that in a pursuit so many sided as medicine, whether in its scientific or practical aspect, we have to submit more and more to that division of labor which has been a condition of advance in all other walks of life." It is true that knowledge of diseased conditions has been brought into the light of knowledge by "specialists and by them distributed to the profession; and that in no other way could this end have been attained."

Thus, the increase in medical knowledge has necessitated expenditures for office and laboratory personnel and equipment far beyond the capacity of all save few physicians, nor can one individual have either the ability or time necessary for their use. At the same time provision must be made for the integration of knowledge as well as for the winning of it by several aids. Physicians educated in our schools and hospitals accustomed to rely upon the trained nurse, the bacteriologist, immunologist, pathologist, biochemist, the physiotherapist, and the cooperation of clinicians skilled in the various specialties, feel unwilling to undertake practice in rural districts and other regions where such aids are inaccessible.

Nor in the field of public health and sanitation is the physician alone competent to supply the requirements of today. Scarcely less necessary than the medical officer of health are the sanitary engineer, the vital statistician, the public health nurse, and the laboratorian, while the physician must know not only diagnosis and therapy but epidemiology.

In the larger communities the problem is being solved, so far as the profession is concerned, by adequately equipped hospitals, clinics and laboratories, by organized group practice, and by reference relations.

Despite the pessimism of those who are perhaps thrown in too close contact with public health and become impatient, the public has been educated with regard to the importance

of medical science and to an appreciation of what may be accomplished by the general application of medical knowledge not only in curing disease and alleviating pain, but in preventing disease with consequent increased individual and community efficiency. It is a matter of very deep significance that the interest of the public in matters of health is not limited to the medical profession or to well-meaning altruists, but includes great leaders in industry. It is significant, too, that probably the most forward movements to supply scientific medical service to the public have been and are being led not only by physicians, but by laymen and men of importance in national affairs.

Thus, within the memory of many of us here today there has come about a greater revolution in the world of science and a closer inter-relationship between individuals and states than in all the ages before. We have passed from individualism to mutual dependence in the world at large. It will be impossible for the medical profession, though it may lag behind, not to be affected by this change. Changes and discoveries have occurred so rapidly that many of them now appear as isolated and disconnected. It remains for that great Master, Time, to cut out the irrelevant exposures and present the finished picture as a continuous film in logical sequence for study by future generations. We have eaten of the fruit of the tree of knowledge. It remains for us and for future generations to show whether wisdom has lingered or knowledge has been wisely assimilated for the healing of nations. Increased knowledge has driven us from the Garden of Individualism and self-privilege to greater toil and labor for our fellow man. Let not the medical profession be led into false paths or caused vainly to attempt to stop the march of progress by walking delegates and self-constituted defenders with their bogus and alarming cries of state medicine.

State medicine in the sense of community effort began centuries ago when the religious or secular arms of government established hospitals and quarantines, and at a later date hospitals for the mentally sick; and it is probably true that there was in the past no further extension of this service, which great statesmen have declared to be the highest duty of government, in part because of the lack of appreciation of its importance and in part be-

cause of ignorance of methods to be adopted. Nor was there the same necessity for community effort when people were more or less isolated, as in the present stage of community life and effort.

The government, too, has shown its interest in the public health by throwing out safeguards and prescribing higher qualifications and giving special privileges to those to whom it intrusts the medical care of the people, in such manner that these privileges become responsibilities. The great question before us now, as I view the situation, is not whether the government, be it local, state or Federal, shall concern itself with the health of the people, but what shall be the relationship between the members of our profession who are directly employed by the people, through their representatives, and those who are engaged in what is called mistakenly private medicine. I say *mistakenly*, because even in the most confidential relationship obtaining between the physician and patient, the physician is not acting solely as a private citizen but also as a licensed and privileged representative of the people as a whole. The death, invalidism or the continued good health and efficiency of the mother or breadwinner of a family, the question as to whether a child enters upon life a useless encumbrance or a useful addition to the state, are matters of concern not alone to the physician and the patient but to the community at large as well.

This is not the time or place for detailed statements as to the causes of the fact that the present condition of affairs is unsatisfactory both to the medical profession and the people. It is a matter of common knowledge on the one hand that a large proportion of the people are not getting the highest type of medical service; nor is this situation due to any lack of that generous service and charity which has been the glory of the medical profession from the beginning; neither does the average doctor have greater remuneration than just compensation for his long years of training. There is nothing peculiar in this situation—individual effort has given place to coordinated community effort in every other line of endeavor. For instance, there are few of us who would abolish the public school or the government construction of roads or the regulation of transportation, or a wise regulation of foods and drugs, or government assistance to groups



or areas in time of emergency. What then shall be the relation between the profession and the public whom they serve? There is, I fancy, no question in the minds of any one that the prevention of the introduction and spread of the communicable diseases, the control of water supplies, and other matters of sanitation of the environment, requires government control, nor is there, I imagine, opposition to public control of the purity of biologic products and drugs, or that research can be done by government. There are those who would write the prescription, "Let the state take care of preventive medicine and the private practitioner of curative medicine." Who of us is wise enough, in the light of present knowledge, to draw the line or even establish a twilight zone between the two? The problem which must be solved is, shall the present conditions under which those who are unable to pay for adequate medical and hospital facilities and are dependent upon the charity of the private physician, and those who live in rural communities where no such service is available, continue without them, or shall there be a readjustment to conform to present ideals and conditions. That there will be a change I feel confident, indeed the change is rapidly being accomplished.

It is, perhaps, inappropriate for me to express an opinion regarding the remedies for present conditions, but there are certain fundamental principles which may well be considered in order to reach the goal of our profession—which should be not only the lessening of suffering and death but the increase of happiness brought about by improved mental and physical health.

The only sure foundation stone for the edifice of public health is the close and sympathetic association of enlightened, intelligent medical men in private practice with trained local health organizations, coordinated and assisted by a thoroughly organized state health department provided with sufficient personnel and equipment to exercise those functions which cannot be carried on efficiently by local organizations.

The functions of the Federal Government should properly be to carry on research through its Public Health organization in solving health problems of other than local interest, and to assist the states in times of emergency or during the period of development of their

state and local organizations. The problem may not be solved either by official or voluntary effort directed exclusively towards one group, condition or disease, but rather by well developed and coordinated effort against all conditions which militate against good health. Nor is the problem to be solved by any written formula applicable to the country as a whole, but largely by the interested groups in each community meeting conditions peculiar to itself as they may arise, in collaboration with state and national groups.

It seems to me that many of the difficulties which are occurring between so-called organized medicine and official and unofficial bodies interested in the health of the public, are due to a lack of control and mutual understanding of the motives and objects of the sound leaders on both sides. All of us who are worthy to be members of our splendid profession with its glorious history of self-sacrifice are working for the same object. There is too much suspicion, too little real effort to cooperate. Keyes has written "Events march on to their conclusions undetermined by the gyrations of statesmen." A change in the historic relations between the medical profession and the public is taking place; let us who are best fitted by education, training and tradition guide and direct the change along wise paths, and not by withholding our guidance leave the future to more radical and less wise direction.

One of the most important duties which confronts the organized medical profession of this country today is to educate and stimulate the people to a realization of the importance of adequate and suitably trained local health organizations.

Virginia has been unusually fortunate in this respect.

Few men in the light of experience now believe in the abolition of a trained armed service and placing entire dependence for the defense of the country upon an armed citizenry rising in time of stress. No less futile, it seems to me, is the proposal advanced that the public health of the country should be left to the medical societies alone. This is the day of specialties, and as the private practitioner must depend largely upon the aid of technicians, even in greater degree must the medical officer of health depend upon the sanitary engineer, the trained epidemiologist, the vital statisti-

cian, the public health nurse, and other arms of a trained regular health army.

From the beginning of the settlement of this continent, Virginia has produced great leaders in times of stress and change, who have found the solution of the problems of the hour, and I am confident that in this day of changing relations between the medical profession and the public she will continue to produce with the aid of this state medical society, men able and equipped to solve her problems of the future.

### A STATE MENTAL HYGIENE PROGRAM.\*

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*Mens sana in corpore sano.*

Every physician is an observer and a student of human beings, the well and the ill and their behavior. I shall, therefore, attempt to present in this paper an outline of the background, the development, and the value to the individual and the state of this latest of the country's great public health organizations—mental hygiene.

A program for mental hygiene should, I think, start with a scientific setting, consequently I make my initial public effort, as the director of the Division of Mental Hygiene in the State Department of Public Welfare, before this Society.

The term mental hygiene, which in recent years has come so much into use, is not a new one, either as an idea or a name. We find, for instance, in literature, "Mental Hygiene, or an Examination of the Intellect, etc.", by William Sweetser, a book published in 1843, and Dr. Isaac Ray published a book in 1863, entitled "Mental Hygiene," but within the past two or three decades it has become to be of greater significance, and has a new and broader interpretation.

"By Mental Hygiene we mean," to quote a distinguished authority, Dr. Frankwood E. Williams, "mental health or the rules by which mental health may be maintained." It is the science and practice of the preservation of mental health. Sound mental health is essential to social and economic adjustment and to personal contentment and usefulness. Let a man's mind cease to function to a noticeable degree, he at once loses his social and finan-

cial influence and prestige. To quote Herbert Spencer:

"It is the mind that maketh good or ill,  
 That maketh wretch or happy, rich or poor."

Indeed, the mind is the most complex thing in the world. Its derangement may at almost any time bring misery and chaos into the life of any individual. Hardly a family escapes so long as a generation without having one or more of its members become a victim of mental disease.

The field of mental hygiene is especially prevention. While it primarily aims at prevention, it also has as an objective the maintenance of sound mental health, promotion of greater happiness, and development of more efficiency. The purpose of a mental hygiene program in a state is not only to effect in time an appreciable reduction in mental disorders and defect of every grade, but, also, by the application of mental hygiene principles and precepts, to reduce delinquency, crime, dependency, alcoholism, drug addiction, nervous invalidism and other undesirable conditions.

The present day understanding of the insanities and the different grades of mental disorders is no longer limited to what is or was observed within the confines of the "cells" of a "lunatic asylum," according to the old nomenclature, for various other sorts of abnormal behavior are embraced in the term, such as constitutional psychopathic states, psychoneuroses, border-line mental conditions, psychasthenia, alcoholic and drug addiction and others.

While through the concerted action of physicians and physical hygienists great progress has been made in the prevention, even the eradication of many physical diseases, especially those of an infectious nature, the so-called germ diseases, no such progress has yet been made in respect to mental disorders and defects. This is probably due, in large measure, to the fact that efforts at prevention were expended on the adult largely to the exclusion of the child, but it has now been recognized that "childhood is the golden period of mental hygiene."

In the prevention of mental disease and defect much has been done by the general practitioner and public health official, for the reason that various physical conditions and preventable diseases sometimes constitute etiologi-

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cal factors in mental disease. In any state mental hygiene program, therefore, the active interest and participation of the departments of health, state and local, are of vital importance. The past two or three decades especially have witnessed such growth in psychiatry that it has taken its place as an important division of the practice of medicine and is now actively engaged in preventive medicine in the form of mental hygiene.

The aim of mental hygiene is to ascertain by a complete study of each patient the causes of his mental and emotional disturbances and his failures, and so the problems of human behavior come within the scope of its efforts. In doing this there is need to know as much as possible about the patient's heredity, environment, physical disease, constitutional weakness, emotional upsets, personality traits and disorder of mental processes, that is, the entire patient—physically, mentally and emotionally. It strives also to promote the best methods of care and the most successful treatment of the patient at home and elsewhere. Dr. Linsly R. Williams, Director of the New York Academy of Medicine, speaks this way in reference to the whole patient: "Modern medicine is coming to emphasize the need for the physician to bear constantly in mind that the whole patient is sick; not merely the heart or the liver. In many instances, particularly in such diseases as tuberculosis, the emotional factors of the case are quite as important as the physical. Often the ability to change the mental attitude of the patient to himself and the world is more necessary than a knowledge of how to treat him for his ailment." In psychiatry not only the whole patient is studied, but his entire life history, and his family's.

A general campaign of prevention of mental and nervous diseases should be stimulated by the following statistical information, published or republished in some standard medical and mental-hygiene journals. There are in the United States 6,852 hospitals that provide 892,934 beds for all classes of patients. Of this number of beds 394,268, or more than 44 per cent., are for mental and nervous and feeble-minded patients. The average number of patients in institutions was 702,738, of which 369,035, or more than 52 per cent, were mental and nervous patients. The increase in the number in institutions for mental and nervous cases was 18 per cent in excess of that

for the general hospitals. One of 171 persons in the United States was a patient in a hospital of some kind. One of 325 persons was a patient in a hospital for mental and nervous diseases, which is a larger proportion than for any other group of institutions.

It is estimated that there are 450,000 persons in the United States who are complete social liabilities because of mental disease; 600,000 who have to be handled through courts, prisons and reformatories every year because of major crime; and more than a million who, because of their low intellectual endowments, are prevented from being social assets. These groups are costing society millions of dollars every day, to say nothing of the waste of human beings and their potentialities for constructive contribution and of the unhappiness wrought upon others (Dr. George S. Stevenson, National Committee for Mental Hygiene.)

In the face of the foregoing information relative to insanity and crime, is there any wonder that some authority has said, "The economic and human and medical problems incident to a large and increasing number of persons suffering from mental disorders are stupendous and tax the ingenuity of legislatures, administrators and scientists." Yet, with all this array of statistics, it is doubtful that there has been any real great increase in insanity when we take into consideration the increase in the general population and the fact that the hospitals for the mentally sick are not shunned as was formerly the case, and that the diagnosis of mental disorder is not so restricted as it formerly was. Another factor to be considered is the greater longevity of patients in the institutions due to improved personal care and generally better hospitalization. A regrettable thing, however, is that there has not, it seems, been any noticeable increase in the recovery rate in mental cases. If, however, we follow the modern trend towards mental hygiene and more extensive clinical service, especially in the early stages of mental disturbance, there should be a larger percentage of recoveries.

The present mental hygiene movement is an inspiring human story. The National Committee for Mental Hygiene is sponsor, so to speak, of what has been done in the various states of this country, and it has also spread its activities and influence to European countries. World-wide interest is indicated by the

fact that next May the International Congress for Mental Hygiene will meet in Washington, D. C. At the same time and place the American Psychiatric Association, the American Association for the Study of the Feeble-minded and the National Association for the Study of Epilepsy and Care of Epileptics, will hold their annual meetings. What an opportunity for Virginia doctors, psychologists and social workers. Clifford W. Beers, who had been insane and had regained his mental health, wrote a most interesting and inspiring book called "A Mind That Found Itself," which led to the inauguration of the present mental hygiene movement.

In mapping out a plan looking to an efficient program for mental hygiene for a state, which, of course, should be more or less elastic and adaptable, we do well to have in mind the suggestions of Dr. George K. Pratt, of the National Committee for Mental Hygiene. Broadly speaking, there are, he says, two divisions. The main function of one is educational. This is usually a voluntary organization, such as a state committee or society for mental hygiene. The other division is a statutory authorized state department or bureau having definite administrative powers. As a matter of experience, it has been found in some states, Virginia, for instance, that it is necessary and sometimes expedient and advantageous to have the two divisions combined in a state agency. But even under such circumstances much of the educational work is conducted through a voluntary agency, such as the Conference of Social Work in this State.

In a number of states mental hygiene societies or committees render valuable service. It is one of the chief sources of information to the public. Such a society was organized several years ago in Virginia, but on account of the World War it did not function. It should be reorganized and, if active, it would be one of the State's most useful voluntary agencies. The educational methods of a state mental hygiene program consist of dissemination of correct information through papers and talks before medical societies, civic organizations, schools, and other groups, publications in the medical and lay press, pamphlets and exhibits, such as the Department of Public Welfare had last August at the University, during the session of the Institute of Public Affairs.

Teaching of psychiatry and mental hygiene

to medical students is the bedrock of an efficient state mental hygiene program for the reason that the relation of the general practitioner of medicine, especially the pediatrician, and the psychiatrist is, for obvious reasons, very close. While behavior disorders do not always have a medical aspect, in the case of defective children there is almost always a medical aspect. Every graduate nurse should also be required to include in her curriculum a reasonable amount of training in these subjects. The public health nurse, having a fair knowledge of psychiatry and of mental hygiene principles, occupies a peculiarly strategic position in her territory. She has an unparalleled opportunity in prevention of mental disorders. It is undeniable that the future of psychiatry lies in educational and clinical methods having as their main object prevention. The attorney would certainly have a far better understanding of medico-legal cases in which mental disease is an element if the law-schools gave a course in the subject.

A child guidance clinic is an essential part in every state mental hygiene program. The function of such a clinic, whether central or mobile, is to make a complete examination of each individual child relative to his heredity, his physical condition, his environment, his social and economic status, his family situation, his various conflicts, his habits, his sex life, his difficulties, his reactions, his emotional make-up, his personality traits, his school life and progress, his attitude to others and himself, his intellectual level and his psychiatric trend or disorder. Based on the findings of such examination, investigation, personal study and analysis, appropriate physical treatment and correction of unfavorable situations are advised for the purpose of bringing about healthy conditions and harmonious adjustments. An effort is then made in guiding and training the child so as not only to prevent ultimate failure, but to develop the best that is in him, to the end that he may become a healthy, well-behaved and productive citizen. The successful operation of such a clinic requires technicians and specialists in various fields, such as social service, psychology, pediatrics, general medicine, neurology and psychiatry. This significant language is used in one of the state mental hygiene bulletins: "Few psychoneurotic adults have had a happy, wholesome and normal childhood, and few



happy and wholesome children become psychoneurotic later in life. Mistakes in the care of the mind of the child are more serious, as mental traits become firmly fixed at an early age." The Commonwealth Fund is authority for the statement that there are now nearly 500 such clinics in this country, distributed over thirty-one states. Last year more than 40,000 children with all sorts of mental and nervous disorders and behavior problems passed through these clinics.

There is no feature in a prevention program that is of more vital importance than out- and in-patient clinics in connection with the state institutions for mental and nervous patients. The clinics benefit not only the furloughed patients, but serve the purpose of giving advice to others, particularly the border-line cases and patients with incipient mental symptoms. The value of social service, especially in connection with the state hospitals and their clinics is so obvious that discussion would seem to be unnecessary. Helping furloughed or discharged patients procure employment and giving them advice relative to various other difficulties with which they are confronted come within the scope of such work. Many cases require medical supervision by physicians trained in dealing with mental disorders. Nothing to my mind would promote mental medicine and advance the interest of the state hospitals and do more to give the general practitioner a practical knowledge of mental disorders than the more extensive use of these health centers—the state institutions for the insane, feeble-minded and epileptics, by having clinics there more frequently than is usually customary. Several states have such clinics, as above mentioned, in successful operation.

Psychiatric hospitals are being successfully operated in at least nine states; and psychopathic wards in at least twenty-six general hospitals have proven to be of particular value, especially in the treatment of mental cases in the incipient stages. Admission to psychopathic wards is for study, diagnosis and outline of treatment. All cases come of course, voluntarily, and their stay should be limited to say thirty days. Psychiatric or mental hygiene out-patient clinics in connection with general hospitals are of special educational and clinical value. Such clinics are operated to advantage in the hospital services of the medical schools of Virginia.

The prevention of feeble-mindedness and the control and care of the mental defectives constitute troublesome problems in every state. The committee on Cost of Medical Care in this country estimates the number of feeble-minded, imbeciles and idiots in the United States at over 900,000.

Three methods as state measures of prevention, control and care, have received study and consideration: namely, (1) segregation in institutions; (2) community supervision, and (3) sterilization. Segregation cannot, on account of the great public expense, be carried out to a more than comparatively limited extent. Some authorities have advocated, not without good reasoning, the segregation in institutions of only the lower grade of feeble-minded and idiots, and the morons, who are frequently delinquent or criminal, leaving the rest in the community under official supervision of some state agency. Dr. William A. White says, in his *Lecture in Psychiatry*: "I have been convinced for a long time that the feeble-minded could be industrialized in our large industrial centers, with great profit to themselves and to the community at large, provided, of course, that they were properly supervised as they would be in an institution." Application of sterilization under expert medical and surgical service and careful legal restrictions and safeguard, chiefly with the view, however, of eventually reducing the number of defectives and dependents, has advocates in several of the states. The law in Virginia is applicable to certain patients in the institutions for the insane, feeble-minded and epileptic.

The mentally defective and the problem children in school are entitled to a place in a state mental hygiene plan and have in many states, with the object of making them of as much economic use as attainable for them and preventing them from developing into dependents and delinquents, social and psychiatric problems. Such children should have adequate training, especially along manual, industrial and vocational lines, commensurate with their several abilities. The schools, therefore, are in position to render great public service to these children and to the community generally. Routine mental tests of school children, especially those whose mentality is questioned, are as important as physical examination, yet the mental status of the child is often entirely over-looked until it becomes a heavy burden

or a menace, or gets into court. Psychologists and visiting teachers constitute an essential part of the personnel equipment of an efficient public school system.

Mental disease being unquestionably a factor in many crimes, psychiatrists should always be available for service to courts in all doubtful cases, and especially in major crimes. The Juvenile Courts should have the advantage of the services of psychiatrists for a great majority of juvenile offenders. In some states, notably Massachusetts, very advanced steps have been made along the line of psychiatric examinations of persons charged with major crime. In Colorado all persons charged with crime, making a plea of insanity, are committed to the State Hospital for observation and study. The Virginia law relative to such cases meets the scientific requirements pretty well, but I would recommend some improvement in the law.

There is also need for psychological and psychiatric services in all prisons and industrial schools or reformatories. There is particularly a field of usefulness for the psychiatric social worker in making investigations of the background, social and economic, and the personality traits and mental abnormalities of convicts and juvenile delinquents and tracing any relation that may exist between the adult prisoner's childhood situations and maladjustments and his subsequent criminal course. Such investigations would, I believe, reveal some most interesting and important information bearing on the causes and prevention of crime.

The demonstration mental clinic at meetings of medical societies is of special value in giving medical practitioners a more intimate knowledge of various forms of mental disease and defect, their origin, development and termination, and how best to treat and deal with them. Such clinics have been held in some of the states and this year have been held in this state. They should in future be more frequently on the programs of State and local societies.

Virginia is speeding up its progressive march in public welfare generally to keep step with its material advancement. It has on hand a big mental hygiene problem to the solution of which much thought has been given. With the new century, new interests and new activities came, especially in social prob-

lems. The State Conference of Charities and Correction, now the State Conference of Social Work, organized in 1900, by a small group of men, initiated a progressive program relative to the various social problems—insanity, feeble-mindedness, epilepsy, delinquency, crime and dependency in which individual and public welfare were concerned. Gradually many others joined the movement. This new interest and a better knowledge of the situation led to appropriate legislation and better care and improved treatment of the state's wards, and ultimately to the present organized state welfare work, including the division of mental hygiene.

With the advent, in 1908, of the State Board of Charities and Correction, which has developed into the State Department of Public Welfare, there was a definite awakening in state-wide social welfare. The legislative bill creating this board was, strange as it may now seem, vigorously opposed by some, but those who were working for better things in Virginia succeeded. The colony for epileptics was established in 1908, after earnest effort for sixteen years by a small group. Special interest was aroused in the feeble-minded, resulting in a comprehensive survey and a very informative report of the situation in the State in 1916. This splendid work under the general direction of the Board of Charities and Correction, Dr. J. T. Mastin, its able executive secretary, having entire charge of this public service, and his subsequent accomplishments, are well known. The colonies for the feeble-minded were established in 1912, on a meager appropriation of \$15,000. The board initiated in 1912 humane work among children by removing them from jails and almshouses and placing them in homes, and in 1914 the legislature enacted laws relative to the board's authority and duty in the matter. More interest in the child's personal life, and study of his home conditions, his habits and handicaps resulted. Steps were taken in 1914 and efforts continued to create a State Commission on mental health. The legislature in 1922 authorized such a body, but failed to make the necessary appropriation to carry out its purposes. Yet something was accomplished in the way of education and creating favorable public opinion. Finally, with a fairly good educational background and supported by those who were especially but unselfishly interested and had fair knowledge of



conditions in the State, action was taken. In the Children's Bureau, a division of the Department of Public Welfare, established in 1922, were initiated steps in connection with the study and treatment of children committed by the juvenile courts.

The first definite accomplishment of a permanent nature in organized mental hygiene in the State was the Richmond Children's Memorial Clinic, started in August, 1924. This child guidance clinic began its operation under the joint financial support of the city government, the city public school board, the McGuire Newton Fund, the State, and the Commonwealth Fund. It received for study all the children committed by the juvenile court of Richmond, those referred by the public schools, and also those committed by the courts, to the State Department of Public Welfare, until it established its own clinic last fall. The Children's Memorial Clinic, now under the direction of Dr. Harvey DeJ. Coghill, a well-trained psychologist and psychiatrist, and the State Mental Hygiene Clinic work in close unison and are mutually helpful.

Some facts relative to the present situation in Virginia will, I believe, interest the physicians of the State, and create further in their minds a realization of the need of a more vigorous campaign for the prevention of mental and nervous diseases. The data is interesting and significant: In January, 1923, for instance, there were actually in all the State institutions for the mentally sick 5,566 patients and 895 on furlough, or a total of 6,461. July 1, 1929, there were actually in those institutions 7,271 (4,817 white, and 2,454 colored), or a total increase of 1,705; 1,720 were on furlough, or 825 more than about seven years previously. The total number on the registers of the five institutions for the insane, feeble-minded and epileptics was 8,991, or an increase of 2,530 in that time. During the past year 2,005 cases were admitted, as against 1,676 in 1922. It is interesting to note that fifteen years ago there were under care in these institutions only 4,853. The total number of patients under institutional care and supervision, that is, in the institutions and on parole, the past fiscal year, was 10,507. Although the institutions are crowded, no insane are kept in jails except for very brief periods, but even this is not to be approved. Temporary hospital service or other proper means

of care should be provided for cases pending their legal commitment, except in especially disturbed and destructive cases. The State, however, already provides for emergency commitment to the State hospitals.

The following figures indicate what a heavy load the state is now carrying on account of mental disorders: Appropriated for maintenance and additional buildings and other permanent improvements and equipment for all the institutions for two fiscal years ending February 28, 1930, is the sum of \$2,977,395. This does not include special revenues, such as those coming from pay patients, United States Veteran's Bureau, etc. For similar purposes, for two years ending February 28, 1914, the amount appropriated was only \$1,290,185. But call back to 1900: There were 2,820 patients in the hospitals, but about 400 certified cases had been left in jails. The total appropriations for two years was \$610,000, and \$40,000 appropriated to care for "lunatics in jail."

There is ample evidence that the public conscience has been touched and that the State Government is more liberal than it formerly was towards its defective and dependent citizens. This is as it should be. The Governor of the State has for the past several years been especially concerned in the welfare of our mental unfortunates. This attitude is reflected in the foregoing figures and in the recent enlargement and good physical condition of the several hospitals. But the State should do more, and doubtless will. States, as well as nations, are never impoverished by the munificence of their charities.

Our State institutions have, notwithstanding their lack of sufficient funds in years gone by, done excellent work. It would be especially informative and interesting to review in this paper the splendid accomplishments in the development of the state care of the insane, the feeble-minded and the epileptic, and in the enactment of modern legislation, especially during the past thirty years, but the purposes of this paper are to deal with present conditions and needs and suggest at least a partial program for the future, dealing particularly with prevention. It is undeniably true that our institutions are rendering excellent public service and attaining good results, nevertheless the medical and probably the dental staffs are too small and the scientific equipment in-

sufficient to meet adequately the requirement of the highest medical standard; and the corps of graduate nurses is very much smaller than such hospitals should have in order to give good nursing service. The mentally sick are entitled to the very best care and treatment a State can afford to give them, and medical work and nursing occupy the foremost places. The mentally defective constitutes our present most pressing difficult problem. The Governor and the Commissioner of Public Welfare are favorable to the enlargement of the colonies for the feeble-minded and epileptics to the extent of not less than 250 beds.

The Virginia Bureau of Mental Hygiene and its work and plans should be of much public interest, especially to physicians. It is a new division of the State Department of Public Welfare. Its establishment was made possible by the progressiveness of Governor Byrd and by the support of the State government, supplemented by a liberal grant from the Commonwealth Fund. With intelligent understanding of the situation in the State relative to the need of prevention, supplemented by his usual activity in accomplishing things worth while in the field of public welfare, Frank Bane, Commissioner of Public Welfare, succeeded in establishing and organizing the Bureau this year with adequate personnel to conduct a developing mental hygiene program. The personnel of the Bureau consists of a director and chief executive, who is a psychiatrist, a director of the Child Guidance Clinic, who is also a psychiatrist, two psychologists, two psychiatric social workers, and sufficient clerical force. In addition, a distinguished psychiatrist is consultant.

The Bureau cannot hope for some time to accomplish more than a comparatively small part of a comprehensive task, such as I have outlined as a general state program. It has, however, at present a few definite objectives. It desires to carry out gradually a plan of education, and, in doing so, recognizes that the assistance and cooperation of physicians, health officers, social workers, teachers, ministers, courts, the medical and lay press, civic clubs, radio and other agencies are necessary. In carrying out the educational feature it contemplates enlisting the services of a group of especially well qualified individuals, including, of course, physicians. There is available an enormous amount of literature, both scientific

and popular, giving an immense impetus to the general interest in problems of the mind. The Bureau has already initiated a small reference library which will be enlarged as rapidly as means are available. It hopes to become a center of much information relative to the insane, mentally defectives, and delinquents.

The State Mental Hygiene Clinic, having its headquarters at Richmond, is an important work of the Bureau. It examines and makes careful physical, psychological, social and psychiatric study of all the children committed by the courts to the Department of Public Welfare, numbering about 650 a year. Patients needing physical treatment are referred to the several out-patient clinics of the Medical College of Virginia. The Bureau provides travelling or mobile clinics equipped with qualified personnel, consisting of a psychiatrist, a psychologist and a social worker, for any city or locality, through request of authorized health departments, social agencies, school authorities and other recognized organizations. It has already begun this service in three cities and is planning to go to another in the near future. Because the organization of the Bureau was not completed until very recently, these activities were in a measure deferred. All cases referred to the clinic must have previously had physical examinations, and every one must be recommended or approved by a regular physician, who is interested, preferably the family physician.

The Bureau, being desirous of serving the State as well as possible, will, as far as its organization and resources permit, accept for examination and study by its clinics, some special problem cases referred to it by physicians, social agencies, and children's institutions, and will likewise make, as far as practicable, psychiatric and psychological surveys of children's institutions. It will aid, on request of proper authorities, in promoting mental hygiene in the public schools. The bureau has already been of service in connection with investigations of persons charged with or convicted of crime, and will enlarge its usefulness in that field when it has sufficient personnel to justify it.

Believing that one of the most efficient sources for prevention is to be found in properly conducted out-patient clinics, the bureau will promote in every way possible



psychiatric clinics in connection with the state hospitals as well as general hospitals. It will also especially aid in promoting psychiatric social service at the State hospitals, or in connection with patients on furlough from institutions. A social service follow-up system for paroled patients, now numbering about 1,700, would be a means not only of preventing, in many instances, relapses of mental disturbances, but would be a method of spreading the knowledge of mental hygiene throughout the State. Its social and economic value would be significant. Efforts were inaugurated in Virginia in 1915 in which the medical officers of the State institutions participated, relative to social service.\*

The Bureau and the entire Department of Public Welfare most earnestly advocate psychopathic hospitals and psychopathic wards in connection with general hospitals, either as a separate State unit of the Department of Public Welfare, or as a part of the hospital system of the medical schools. This would be one of the most advanced steps that could be made in psychiatry and mental hygiene. The University of Virginia medical school has recently taken steps looking to the establishment of such a unit.

The psychiatric service at the penitentiary, initiated several years ago, should be enlarged so as to have a whole-time psychiatrist and a psychologist, and similar service should be provided at the industrial schools. To this should be added adequate social service. A follow-up system with discharged convicts would undoubtedly help to prevent recurrences of crimes, especially in those having a low mentality. The social history of every convict should be thoroughly studied so as to ascertain his childhood make-up, family and personal background, and study these in relation to his subsequent criminal conduct. The Governor's Mental Hygiene Advisory Board which began to function in 1918 has rendered good service at the penitentiary.

From the history of the splendid achievements in the prevention of the physical diseases by the Virginia Department of Public Health and the State Tuberculosis Association, the Bureau of Mental Hygiene gets inspiration and encouragement. It hopes and expects to be of value to the State in the field in which it

has undertaken to work. Let us as physicians and humanitarians think seriously on the problems incident to the human mind, and set about earnestly in a constructive way in trying to find a solution, certainly to the end that mental disease and defect, crime and delinquency and their consequences, may be reduced.

In closing this presentation of a subject that cannot fail to interest and appeal especially to physicians, the guardians of the people's health, I feel that I can not do better than quote the language of a very distinguished physician and mental hygienist, Dr. Lewellys F. Barker, of Baltimore: "A campaign for mental hygiene is a continuous effort directed towards conserving and improving the mind of the people; in other words, a systematic attempt to secure human brains so naturally endowed and so nurtured that people will think better, feel better, act better, than they do now."

"Who dream shall live, and if we do not dream,  
Then we shall build no temples unto time."

#### DISCUSSION.

DR. JAMES K. HALL, Richmond, Va.: The recognition of mental disorder as a disease is of recent origin. The development of the hospital for the diagnosis and the treatment of mental abnormalities dates back only to yesterday or the day before. Until recently the physical being has been looked upon, even by medical men, as one entity, and the mind as a separate entity. Each has been thought to exist and to function more or less independently of the other. Now we know that such a conception has been wrong. Now we know that the mind is as old, speaking historically and biologically, as the body. Now we know that physical functions and mental states are so closely coordinated and so mutually dependent and influential that what affects the one adversely affects also the other adversely. Now we know that a human being is a unified organism. Regardless of what the origin and the basic quality of the mind may be we know that it is that quality by means of which a human being adjusts himself, consciously or unconsciously, to his environment. It is that attribute through which one is enabled to have life more abundantly. The study of the mind out of order constitutes psychiatry. The condition is probably as old as the human race, although the referring term is new. David either had an attack of acute mania, or else he had observed mania in another keenly enough to enable him to simulate it. At any rate, David's behavior in an emergency was so strange that his pursuers reported him to be insane. And the condition, whether feigned or real, served the purpose of saving him from his enemies.

Laws prevail in the dominion of the mental just as they prevail in the domain of the physical. Violations, conscious or unconscious, of the laws of health result in disease. That statement holds whether the violation be within the sphere of the psyche or within the region of the physical being. We are beginning to find out that recovery from

\*Social Service Among the Insane, and Its Value in the Prevention of Insanity, by W. F. Drewry, M. D., *Virginia Medical Monthly*, April 9, 1915.

mental dysfunction occurs about as frequently as recovery from serious physical disorder. Disease in the one domain is about as susceptible to treatment as disease in the other domain. And if permanent disorder must prevail it is better that it should hinder the body rather than handicap the mind. It is written that as a man thinketh, so is he. Man by his wit is constantly making possible energy-systems much more powerful than his own muscular machine. Motors and engines and water-wheels are better sources of power than the human body, or the muscular strength of any number of beasts. But man can devise no satisfactory substitute for his own mentality. The hope of mankind and the progress of the race lie in the integrity of man's mind. No other possession is so intimate and so individualistic as one's own mind. No other attribute is so consequential as one's state of mind. If one's mental condition is wholesome nothing else can matter much.

The function of mental hygiene is to enable man to bring his mind up to the highest level of development, to teach him how to preserve and protect it, and how to deal with the mind in its states of sickness.

In this Commonwealth of Virginia all conduct disorders of sufficient consequence to cause them to be noticed by the law are cared for in a general way in institutions that operate under the auspices of the State's Department of Public Welfare. In this Department a Bureau of Mental Hygiene has been set up. Dr. W. F. Drewry has been placed in charge of this Bureau. He has just been telling us what this Bureau intends to undertake in an effort to help the physicians of the state with those individuals who are having difficulties in their own mental lives. The Bureau is anxious to help the efficient to become more efficient, it is equally as anxious to help the inefficient to become more adequate, and it is even more concerned in helping the mentally sick to be well again. And these are not vain hopes. Certainly a mind diseased can be ministered unto, and often it can be made whole and happy again. Dr. Drewry is known to you better perhaps than any other doctor in the State Society. He is nationally recognized as a psychiatrist of great acumen. He means as much to the welfare of the citizenship of this state as any other man in Virginia. I am certain that I am justified in assuring him of the hearty support of this organization and of every individual member of it in his high undertaking.

#### RESOLUTIONS.

The following resolutions were adopted by the House of Delegates of the Medical Society of Virginia at its annual meeting in Charlottesville, October 22-24, 1929:

WHEREAS, The problem of the mentally ill and defective seems to be coming more serious from a medical as well as an economic standpoint; and

WHEREAS, The prevention of mental disease and defect is of vital importance to the State; and

WHEREAS, Mental hygiene is a problem, the solution of which is primarily a medical function. Therefore, be it

*Resolved*, That the Medical Society of Virginia approves most heartily the recent activities in the State looking to the development of a comprehensive mental hygiene program, which has as its main purpose the prevention of mental disorders and defects;

That it commends the extensive structural addi-

tions and the various material improvements that have been made, especially in recent years, at the several State institutions for the insane, feeble-minded and epileptic;

That this Society calls especial attention, with approval, to the recommendations of the hospital authorities relative to increasing the medical and nursing staffs to the end that these institutions may be in a better position to become centers of scientific mental medicine;

That the State hospitals and colonies be thoroughly equipped with all modern facilities needed in the proper care and effective treatment of their insane, feeble-minded and epileptic patients;

That means be provided so that the patients in these institutions may be furnished with the most approved dietary—so essential to their well-being and recovery;

That this Society emphasizes the great need in this State for very material enlargement of the colonies for the feeble-minded and epileptic;

That the State make sufficient enlargement of the hospitals so as to provide ample accommodations for all the insane needing hospital care and treatment;

That this Society earnestly recommends to His Excellency, the Governor, and to the Legislature to provide sufficient appropriations to enable these State institutions to measure up to the standard of the best State institutions in the country; and to maintain an efficient mental hygiene program looking to the prevention of mental disorders and defects and delinquency; and

That this Society heartily recommends the establishment of a chair of psychiatry in each of the medical schools of the State.

### THE PROBLEM OF CORONARY DISEASE.\*

By J. MORRISON HUTCHESON, M. D., Richmond, Va.

During the past decade there has been evident a rapidly growing interest in the clinical aspects of coronary disease, a subject that formerly belonged almost exclusively to the pathologist. As a result of more critical study, the importance of obliterative lesions in the coronary circulation has been recognized and their significance more clearly appreciated. This advance in knowledge centers about the classical description of acute coronary thrombosis given by Herrick, but it has also become apparent that in many instances even acute occlusion fails to produce this picture and that atypical or occult coronary disease is extremely common. Such cases with mild or atypical symptoms, masquerading as indigestion, angina, myocarditis, cardiac dilatation or arrhythmia, furnish to the clinician the real problem of coronary disease.

While our knowledge of the coronary circulation in its relation to cardiac physiology and pathology is far from complete, certain

\*Read by title before the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, Va., October 22-24, 1929.



facts of fundamental importance have been clearly established. Chief among these is the discovery that the coronaries are not end arteries as was formerly thought, but that they do have anastomoses and can establish an efficient collateral circulation. The work of Gross and others has emphasized this fact and also that the capacity for anastomoses varies in different individuals and at different periods of life. Furthermore, from careful correlation of clinical and autopsy findings, it has been learned and is now generally appreciated that cases of acute thrombosis develop a picture easily recognized at the bedside; that many of these cases survive the attack and that they may even regain a good degree of cardiac function. Moreover, it has been shown, both from experimental ligation of the coronaries and from the study of patients, that damage to the cardiac circulation produces changes in the electrocardiogram that are often of the greatest diagnostic significance.

The cause of coronary disease is that of degenerative changes in the vascular system generally. While infection may play a part in certain cases, as when syphilis involves the root of the aorta, there is little proof that previous carditis or focal infections are important etiological factors. Other supposed causes, such as tobacco, diet and strenuous living, are likewise of doubtful significance. From the evidence now at hand, it appears that coronary changes are for the most part arteriosclerotic and represent one important phase of the aging process to which all living things are subject. The age incidence is that of arteriosclerosis, most cases occurring in individuals past forty, but occasionally one encounters an advanced degree of coronary sclerosis in a surprisingly youthful person.

The symptoms resulting from coronary occlusion are variable and depend chiefly upon: (1) the size of the vessel occluded, (2) the rapidity of closure, (3) the condition of the remaining coronary vessels as regards their capacity for collateral circulation. The clinical picture so well described in recent years by Herrick and others and now readily recognized by most physicians probably appears in the majority of patients who suffer a sudden occlusion of a coronary branch of considerable size. There is severe pain, precordial, sub-sternal or epigastric, unrelieved by rest or

nitrites, circulatory collapse and, as a rule, fever with leucocytosis. In most instances, pain dominates the picture, but quite often it is insignificant or absent and sudden heart failure is the outstanding feature. At times death is instantaneous without pain, while mild cases undoubtedly occur in which recognition of the true condition is impossible. In arriving at a diagnosis, too much emphasis cannot be placed upon the presence or absence of any one symptom or sign. The blood pressure may show very little variation; breathing may be surprisingly comfortable; fever or leucocytosis may be missed as they often appear for a brief period. A friction rub has, in my experience, been relatively uncommon. Where the occlusion is gradual and collateral circulation good, numerous large infarcts may be produced with no signs except slowly diminishing cardiac reserve.

In the study of doubtful cases the electrocardiogram is of the greatest assistance. The changes produced in the record are easily recognized and so characteristic that, when they are found in patients with only a suggestive history, they may be regarded as speaking strongly for coronary disease. These changes, however, sometimes persist for a short space of time and may be missed unless records are taken at frequent intervals, beginning soon after the attack, a procedure that is rarely practicable. Barnes has recently stated that, from the electrocardiographic studies in patients with infarction and coming later to autopsy, he has been able to locate the point of infarction with a high degree of accuracy.

How to differentiate between angina pectoris and coronary disease is often a difficult problem. After all, attacks of angina may represent temporary coronary closure or permanent occlusion of small branches. It is well known that patients with clinical angina frequently develop recognizable coronary disease sooner or later and that they usually show evidence of it at autopsy, though the manifestations of thrombosis may have been entirely lacking. Cardiac pain always suggests coronary disease as a likely explanation and one that can rarely be easily dismissed. While we should probably do well to abandon altogether the practice of diagnosing angina, certainly the significance of the syndrome should be determined from an objective examination

of the patient and not alone on the character of the pain.

From experience heretofore recorded in the literature, it appears that more than half the patients who suffer coronary thrombosis succumb in or soon after the attack. This is doubtless true of the severe and easily recognizable cases. But it is also true that many cases are not recognized, as evidenced by the frequency with which infarction has been an unexpected autopsy finding and the common occurrence of fibrotic changes, the end result of multiple occlusion of smaller coronary branches. It would seem, therefore, that if the milder cases were included, the immediate mortality would be much lower than it now seems to be.

When we realize that recovery is likely and that it depends upon reestablishment of circulation through collateral anastomoses, the importance of the recognition of coronary accidents becomes obvious. The period immediately following thrombosis is a most critical one for the heart and it behooves us to see that no chances for recovery are lost through unwise or over-energetic treatment. A few case histories will illustrate some of the variations in the picture that are commonly met with.

#### CASE I. SUDDEN HEART FAILURE, WITH FIBRILLATION AND WITHOUT PAIN

A white male, clerk, aged forty-one, previously in good health, suddenly developed irregular heart action and shortness of breath. These symptoms increased in spite of a month's bed rest and later the feet began to swell. Examination six months after the onset of symptoms showed normal blood pressure, moderate sclerosis of peripheral vessels, slight cardiac enlargement and auricular fibrillation. Electrocardiogram done at this time showed no significant changes except the fibrillation. Response to treatment was poor, congestive failure continued, hemiplegia developed probably due to embolism, and death occurred one year later. There had been no pain at any time. Autopsy showed a rather large heart with an organized clot in the right auricular appendage and right ventricle. The right main coronary was sclerotic and was blocked by a long tough thrombus. The valves were normal.

#### CASE II. SUDDEN HEART FAILURE, PAIN INSIGNIFICANT

A married woman aged fifty-six consulted me on account of dyspnea on exertion and soreness over the upper abdomen. Except for nervousness, she had always been well and unusually active. Two months previously, while digging in her garden, she had experienced a rather sharp precordial pain lasting only a few minutes and relieved by rest, but following it she was definitely short of breath. A week later she had another pain of brief duration, coming on exertion and relieved by rest, but noticed later that she was more dyspneic and sore over the upper abdomen. A week's rest and the administration of 16 grains of digitalis leaf had relieved her greatly. Examination showed a blood pressure of 130/84 with alternation. The heart was definitely enlarged with rate of 80 per minute, gallop rhythm and a systolic murmur at the apex. Moist rales were heard at the lung bases, the liver was somewhat enlarged and quite tender. The electrocardiogram revealed normal rhythm and A-V conduction, T-wave inverted in leads II and III, main ventricular deflection wide and notched throughout, left ventricular preponderance. It was believed that she had suffered a coronary accident and advice was given accordingly. Death occurred suddenly one week later without pain. No autopsy was done.

I have seen several patients with a history of angina of effort, with or without other evidence pointing to coronary disease, in whom death was instantaneous and without pain. Just what the manner of death is, is an interesting speculation which even the finding of thrombosis at autopsy does not settle. Rupture of the heart, embolus in the pulmonary artery, heart block, vagus inhibition and ventricular fibrillation are possible explanations. Of these, fibrillation of the ventricle seems most satisfactory as it is more in keeping with the clinical picture and has been shown to occur soon after experimental coronary ligation.

#### CASE III. ATTACKS OF ANGINA TERMINATING IN FATAL THROMBOSIS.

A farmer of sixty-six complained of pain in the left chest, radiating to the arm as far as the elbow. He was sure that it had occurred off and on for twenty years but had become much more frequent and severe. Attacks were induced by slight exertion or by eating and



always relieved by rest and nitroglycerin. Three weeks' rest in bed had resulted in little or no improvement. Examination showed a spare, muscular man with general arteriosclerosis of moderate degree. The blood pressure was 114/80, the heart not enlarged, rhythm normal, no murmurs. The electrocardiogram revealed an inversion of the T-wave in lead I and left ventricular preponderance. After two weeks of observation and treatment there was no appreciable improvement, as pain resulted from the least exertion and nitroglycerine was required five or six times a day. The patient was afraid to eat or move around and, as his condition was so miserable, paravertebral injection with alcohol of the first five dorsal roots on the left was done. There was prompt relief of the paroxysmal pain but within a week a dull, constant ache appeared over the precordium, worse on exertion and not so well relieved by nitrites as the paroxysms. Eight days after the injection there was a terrific attack of substernal pain, with dyspnea, ashen complexion and falling blood pressure and death within eight hours. During the attack a pericardial friction was heard for the first time. Autopsy revealed a small amount of slightly turbid fluid in the pericardial sac, and there were several patches of superficial pericarditis. A number of old infarcts were seen on the heart's surface and the left main coronary was blocked by what appeared to be a recent clot.

CASE IV. PAIN SUGGESTING SURGICAL LESION OF ABDOMEN. CORONARY THROMBOSIS IN PATIENT OF THIRTY

A white male bookkeeper of thirty was admitted to the surgical service of the Johnston-Willis Hospital, suffering from epigastric pain. He was acutely ill and the question of a perforated peptic ulcer had been considered. He stated that his blood pressure had been found high eighteen months previously, but otherwise he had been in good health. Nine days before entering the hospital he had been suddenly seized with rather severe epigastric pain that did not radiate, nausea and vomiting and intense soreness over the entire upper abdomen. For several days there had been increasing shortness of breath.

Examination showed a well-developed young man with pale complexion and obvious dyspnea. The pulse was rapid and regular, blood pressure 218/142. There was an advanced de-

gree of sclerosis of the retinal vessels, the radials were moderately thick. The heart was markedly large with gallop rhythm, accentuated second aortic and no murmurs. There were numerous moist rales over the lung bases, the liver was large and tender. Electrocardiogram showed elevation of the R-T interval, and inverted T in leads I and II. Temperature was 101. White blood cells 15,700.

On treatment, consisting chiefly of absolute rest, there was temporary improvement which was followed by rapidly progressive congestive heart failure and death four months after the initial attack.

Autopsy, limited to the heart, showed a number of old infarcts, tortuous beaded coronaries and complete obstruction of the anterior descending branch of the left coronary.

CASE V. REPEATED ATTACKS, TYPICAL AND ATYPICAL

An obese man of fifty was brought to the hospital forty-eight hours after the onset of a severe attack. He had previously been in good health, but a recent insurance examination had revealed a blood pressure of over 200. Soon after a rather heavy meal he was seized with a severe pain beginning in the left arm and involving the chest and epigastrium. This was accompanied by nausea, vomiting and great prostration. Several hypodermics of morphine afforded only temporary relief, the severe pain lasting twenty-four hours.

Examination showed an ill-looking patient of ashen complexion but lying flat without marked dyspnea. The pulse was regular and 112, blood pressure 88/68. The heart was greatly enlarged, the sounds feeble, no murmurs. Moist rales were heard at the lung bases. Liver was not enlarged. Leucocytes 16,600. Temperature 101. Electrocardiogram showed striking changes in the R-T interval and T-wave which varied from day to day, gradually developing after two weeks a typical coronary T.

Improvement was rapid, the blood pressure slowly rose to 142/92, and the patient left the hospital in three weeks. Two weeks after discharge he had considerable substernal pain, not enough to require morphine, and was readmitted to the hospital. A fall in blood pressure, fever and leucocytes and further changes in the electrocardiogram were noted. Improvement was steady and he was again discharged entirely comfortable.

A month later he became suddenly dyspneic in the night and when seen three days later the picture of acute congestive heart failure was presented, but in this attack there had been no pain. Again fever, leucocytosis and electrocardiographic changes were noted. On rest and digitalization with morphine for several nights he became comfortable, but after two weeks in the hospital another attack of substernal pain occurred requiring morphine and lasting twenty-four hours. This was accompanied by a rise in fever and leucocytes.

MacLean, in a study of ninety-five unselected hearts from patients of various ages, found that practically all past forty and a considerable number under forty showed a certain amount of coronary sclerosis. While most of these had no clinical heart disease, all were potential coronary cases and candidates for thrombosis. Even if such hearts escape occlusion of a large vessel, the impaired circulation resulting from sclerosis doubtless proves an important factor in myocardial failure, especially if to it is added valvular disease or hypertension. In examining hearts of individuals dying in middle life, presumably from old rheumatic heart disease, one not infrequently gets the impression that advancing sclerotic changes in the coronaries decided the issue rather than defective valves.

From the clinical standpoint, the question of the coronaries in relation to acute or chronic heart failure is constantly presenting itself for solution. Although the complete picture of acute occlusion is relatively uncommon, familiarity with its various features is an essential step toward recognition of atypical and subacute cases. With these features in mind, a careful history will often lead to a reasonably certain conclusion which may be further strengthened by physical examination and laboratory studies. A close scrutiny of blood pressure variations, of fever and leucocytosis is helpful, while the electrocardiograph is usually of advantage and sometimes indispensable.

#### *Professional Building.*

It ain't no use to grumble and complain;  
It's just as cheap and easy to rejoice;  
When God sorts out the weather and sends rain,  
Why, rain's my choice.

—Riley.

## THE RELATIONSHIP OF ECONOMICS IN MEDICINE TO OUR PROFESSIONAL IDEALS.\*

By E. L. KENDIG, M. D., Victoria, Va.

I shall not attempt to fully discuss this subject. These remarks are limited to only a few of the things which affect the economics and ideals of the medical profession. What is presented is said in no spirit of criticism. My only desire is that the different views of those present may be brought out.

It is said that medicine has made more progress in the last thirty-five years than in all time before this period. How much this is correct, no one can say. This is because the science of medicine is cumulative. The structure is built one brick upon another. Like a snowball, the more you roll it, the more progress you make. This progress can be visualized by calling to mind the modern hospital, the approved clinical and pathological laboratory, the electrocardiograph, the X-ray, the various instruments of precision, preventive medicine, aseptic surgery, standardized pharmaceuticals, physiotherapy, intravenous medication, transfusion, immunization, and the hundreds of other things made use of in modern medicine.

Our profession is not the only thing that has changed. The world has made progress in every direction. We do not live like they did thirty-five years ago. Telephones in practically every home can call the doctor in a few minutes. With an automobile and good roads, the physician can cover a larger territory. The patient may in a very short time be brought in an automobile to the doctor's office or to the hospital. Drugs, accessories for the sick room, and nurses can be secured easier. Good hospital facilities are made more available each year. Newspapers and periodicals in every home give publicity to everything that is being done. The people have learned to expect more from the physician of today.

These are the things that have changed the work of the general practitioner. These are the things that have given birth to specialism.

We hear a great deal today about the passing of the country doctor. The good country doctor, as known in the past, is unquestionably passing away. As each one of them dies or relinquishes his work, there is no one to take

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.



his place. This is caused by modern medicine and the change in the manner of living of the people. The passing of the old time country doctor does not necessarily mean the passing of modern doctors to serve our communities. Modern doctors will be found to serve every community if they have the facilities for doing good professional work and can earn an adequate income.

In order that a physician may render the service expected of him, hospital connections are most desirable and laboratory facilities are necessary.

Goldwater says, "The key to nearly everything that makes for efficient medical practice today is in the hands of the hospitals." According to the report of the Council on Medical Education and Hospitals of the A. M. A. this year, only 1,397 physicians in Virginia have hospital connections and this includes duplications in reports. Making allowances for this duplication, it is estimated that considerably less than one-half of the physicians in the State have the use of hospitals. This report shows that 42 per cent of the counties of the State have no such institutions. It also shows that more than 81 per cent of the beds in general hospitals of the State are located in cities of 5,000 inhabitants or more. The small private hospitals, which do exist in the small towns and the country communities, are usually maintained by the local physicians themselves at a great trouble and expense. This same article reported ninety-one clinical laboratories and eighty-eight X-ray laboratories in Virginia. The report shows that nearly all of these laboratories are located in cities of population of more than 5,000. I presume this report does not include laboratory work done for physicians by the State Board of Health. This Board has a central laboratory and several smaller ones in the different sections of the State. These State laboratories are doing a wonderful work, especially for the physicians in the smaller towns and country. However, under the circumstances, they cannot and do not presume to supply all laboratory facilities which a physician will need in his practice.

In this day of modern medicine a desirable situation would be to have a hospital and a laboratory within reach of every physician. With the present ease of transportation this is not impossible.

Any moderately prosperous community can support a physician if he can get a fair part of what that community has to spend for professional services.

It is said by some that the public health clinics interfere with the work and income of the local physician. An idea developed by Dr. Shirley W. Winne, Health Officer of New York City, looks like it might help solve this vexed problem. This health officer made arrangements with the local medical society under which the physicians might agree to give toxin antitoxin to the children of that city. A letter was sent by the Health Department to each physician asking if he would give the treatment; and, if so, to state his office address where he would give the treatment and what hours of the week he would do the work. A price was fixed for the work. After this information from the doctors was received, a letter was sent by the Health Department to the parents of each child to be inoculated, stating that toxin antitoxin should be given within a certain time. In the letter was enclosed a slip with the names and addresses and office hours of three nearest physicians who had signified their willingness to give the treatment, and with the statement that either one of the physicians mentioned could be used. A follow-up method was used until the children were all given the treatment. The Health Department has the means of publicity, the authority, and the organization. The physician has the equipment, the time, and the knowledge to do the work. It seems that the two together would do this work well to the mutual advantage of each other.

Haggard says, "One of the greatest romances in the art of medicine has been the amazing growth and perfection of the specialists." The work of the specialist is more spectacular than that of the general practitioner. Few young doctors now want to be general practitioners. Most of them want to specialize. So great is the trend towards specialism that there is a danger that some may call themselves specialists when they are not in the true sense of the word. There is a temptation by reason of this overcrowding for the trading of patients between those doing special work. It comes about in this way. The general practitioner sends a patient to a specialist needing work to ascertain certain information in his particular specialty. The patient

is examined and, without the knowledge of the referring physician, is sent on the rounds to see all different kinds of specialists. The information secured, with the exception of what the patient was originally sent for, is usually what the referring physician already knows. The result is that the patient is in most instances stripped of funds when he comes back. The referring physician may not even hear from the man who takes the patient on the rounds. The referring physician in this way loses both money and prestige. The general practitioner in towns and small communities is not blameless. This lack of coordination between the general practitioner and the specialist may cause the general practitioner to undertake cases which should be in the hands of those doing special work. Also there is a disposition on the part of the general practitioner to send his patients away as soon as he needs help when in most cases it would be better first to call in his competitor as a consultant. The local competitor does the same thing. In that way both of them lose in income and the practice teaches the patient to leave home for medical treatment rather than seek it there. The well qualified general practitioner is a specialist in the general practice of medicine. It requires as much knowledge as special work and as much common sense. Goldwater further says, "The specialist is at best the hope and the despair of modern medicine \* \* \*. Specialism has split the forces of medicine into numerous small bodies, which valuable as they may be for skirmishing purposes and in certain critical emergencies, are powerless to act as an effective unit in the endless struggle against disease." Only a scientific, ethical, and economical coordination between the different branches of medical practice will be effective in this struggle against disease.

There has been a rise in the cost of medical care. To combat this high cost of medical service, some big business men are advocating the organization of medical practice along the lines of big business organizations. This view is held by Mr. Embree, director of the Rosenwald Foundation. Others are advocating some form of social or State medicine. There is a possibility that this idea may be taken up by the people who live in the rural sections and those upon whom the cost of medical service falls most heavily. If so, the combined

forces favoring the organization of medical practice would be formidable. These advocates, however, fail to realize that the relationship between the physician and the patient is such that it will be impossible to mechanize medical practice. The editor of the *Journal of the American Medical Association* says that the rise in the cost of medical care is a reflection on the increased knowledge that has come to the practice of medicine. A National Committee, known as the Committee on the Cost of Medical Care, is now getting together data and making a study of these costs. The American Medical Association at its recent Portland session appointed a special committee to make an investigation of the subject of medical economics. This committee will no doubt include in its report the present cost of medical care. No matter what the conclusions of these committees may be, it is a fact that at present the cost of medical care has become quite a burden to people of moderate means. The rich are able to pay for good medical treatment. The poor and the dead beats take advantage of charity, but the honest people of moderate means, oftentimes find the cost of medical treatment a burden. I shall not attempt to solve the matter of these medical costs. There are certain things, however, which are fundamental. The maintenance of hospitals and laboratories convenient to physicians in all localities, an established system for reference and contact work between the physicians themselves and the education of the public in the proper relation which should exist in the various fields of medicine, will go a long way towards lessening the cost of medical care.

#### SUMMARY

1. The old country doctor is gone and will not return. His going is not caused by a change in the nature of men of medicine but is caused by a change in the system of medicine and a change in the manner of living of the people.

2. The country and small towns will still be served by physicians and these physicians will be men of modern medicine. The number of these physicians will depend upon the facilities available and the income earned.

3. The work of the general practitioner and public health officials should be so worked out that there will not only be no conflict but each will work for the benefit of the other in



that common cause in the prevention and cure of disease.

4. Specialism is an important factor in modern medicine. This very importance places upon those who follow it an added responsibility.

5. A recognition both by the public and the profession of the relation, scope, and limitation of each branch of medical practice will help bring about at a less cost a more efficient medical service.

6. In adjusting these problems, it should be always remembered that good real human and scientific medical service is the great object of medicine.

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### STARTING THE UNCOMPLICATED DIABETIC ON TREATMENT.\*

By F. H. SMITH, M. D., F. A. C. P., Abingdon, Va.

You will understand the difficulties we are under in the attempt to introduce such a topic as diabetes mellitus, and dispose of it, in a few minutes. In these circumstances, please explain what seems to be blunt, dogmatic statement by the necessity for terseness.

I shall limit myself to a simple outline of my approach to the problems of starting the adult diabetic of average severity and without material complications on treatment.

There are still doctors who are not handling these uncomplicated cases, not to mention the complicated ones, as the resources of the present day permit us to. One group, usually from the older practitioners, still content themselves with the simple instruction: Leave off sugars, sweets and the heavy starches, and the diabetes

will be apt to take care of itself. Another group, this time usually from the younger practitioners, say to the patient: Since we have insulin, you need not trouble to diet strictly. Eat pretty nearly what you please, and we will give you insulin enough to supply the deficit. Each plan is faulty, the second actually courts danger. The danger arises through the constant strain upon, and consequent lessening of, carbohydrate tolerance, so that there is no reserve left for the inevitable crises and emergencies of every diabetic life. Exceed the bounds of the individual's tolerance, and tolerance lessens. Stay within it, and the carbohydrate tolerance usually increases.

The *problem of management* is easily stated. It is to devise, prescribe and insure the administration of a diet, which by itself or, if necessary, with the aid of insulin, will maintain the patient at or about his normal weight and energy, and which will at the same time render his urine sugar free, reduce his blood sugar to and maintain it within the normal, all the while guarding the patient against acidosis, and other complications growing out of the diabetic state.

Thus having stated the problem, the several steps in its solution may be stated:

1. MAKE A COMPLETE PHYSICAL EXAMINATION. I shall not dwell upon this long, but it cannot be over-emphasized. Look for diabetic and non-diabetic complications. Any complication may materially alter both the management and the prognosis.

As for an appraisal of the diabetic state itself: Either the total 24-hour urine, or the several voidings separately, should be examined and the sugar determined, *while the patient is on his ordinary diet*. To say a diabetic is sugar-free on the result of analysis of a single specimen is altogether slipshod. In most cases, an intelligent, scheming diabetic can get life insurance, for instance, by partially fasting for about three days. The glycosuria will often entirely disappear.

The output of sugar will vary from one voiding to another. We must know both the total output of urine and the percentage of sugar. If the glycosuria cannot be determined quantitatively, it can be approximated by determining the number of drops of 24-hour urine needed to cause reduction of the *standardized* copper solution.

It is helpful to determine the blood sugar

\*Introducing Round Table Discussion of Diabetes Mellitus, Southwestern Virginia Medical Society, Galax, Va., September 16-17, 1929.

level at this preliminary examination, so that we can gage the severity of the diabetic process under the man's usual habits.

The *net* weight and height of the individual, as well as age and sex, should be known, for reasons immediately to be mentioned.

2. DETERMINE THE TOTAL FOOD REQUIREMENTS, IN CALORIES PER 24-HOURS, FOR THIS INDIVIDUAL. Individual caloric requirements vary with the height, weight, age and sex of that person, and the character of his work. For instance, a man of 40, net weight 150, height 5' 9", will require 1,640 calories daily to maintain his weight while lying quietly in bed. That is, his *basal caloric needs* are 1,640. From 40 per cent to 80 per cent more will be added for maintenance under work conditions. Most adult diabetics work out to require between 2,000 and 2,500 calories, *when the needs are calculated on the basis of the ideal weight rather than the actual*. A little woman may require only 1,500 calories daily, while a farm-hand may need 3,000. An average boy of 12 years will require about 1,500 calories daily. These calculations can easily be determined from a number of available tables, for instance, that of Boothby and Sandiford, published in 1921.

3. DISTRIBUTE THE TOTAL CALORIC REQUIREMENTS AMONG THE SEVERAL FOOD PRINCIPLES, carbohydrates, proteins, and fats. Each gram of carbohydrate and of protein supplies approximately 4 calories, and each gram of fat supplies approximately 9 calories.

A man will rarely be satisfied long on *less than* 100 gm. of carbohydrate in 24 hours. So, in my work, I rarely attempt to prescribe less than this. If he can't metabolize 100 gm., he will probably require insulin. The average man takes 300 or 400 grams.

$4 \times 100 = 400$  calories derived from carbohydrates.

Proteins supply material necessary for growth and repair of tissue. The average adult requires about 1 gm. per kilo (2.2 lbs.) of body weight. That is, the man of 150 lbs. will require about 70 gm. proteins in 24 hours.

$4 \times 70 = 280$  calories derived from proteins.

The younger the individual, the greater, proportionately, the protein requirement. A young child may require 2 or 3 gm. per kilo. The nephritic with nitrogen retention, on the other hand, may have to be reduced to 0.5 gm. per

kilo. Rarely should proteins be reduced below 40 gm. per day for any length of time.

So, 680 of the, say, 2,400 needed calories have been derived from carbohydrates and proteins, leaving 1,720 calories to be supplied by fats. Since each gram of fat supplies 9 calories, 190 gm. of fat will suffice.

We have thus arrived at a food prescription which will need:

C. 100, P. 70, F. 190 = 2,390 calories.

There have been advocates of higher-fat, lower-carbohydrate diets. It seems, however, that fats (lipoids) are in some way responsible for vascular changes, resulting in arteriosclerosis, gangrene, etc. So Joslin remarks that since insulin was discovered we are saving diabetics from infection and coma, only to lose them later with gangrene and other vascular accidents, due to long-continued high-fat feeding. Hence, there has arisen a tendency to further increase the carbohydrate at the expense of fats, even if in so doing insulin be required. I feel, however, that as long as the ratio of fats to carbohydrates does not exceed 2:1, and the carbohydrates are properly metabolized, the fats should and will be completely burned also.

4. INSTRUCT THE PATIENT, or some member of his family, IN THE CALCULATION OF THE PRESCRIBED DIET FROM THE TABLES. Usually one of the younger folks, especially a girl, is better. They catch on more quickly. Occasionally, no one of the family can be taught to calculate the diet. Then, we have to fall back upon ready-made menus. Calculations, however, are far superior. The exercise makes for accuracy: there can be wider choice of foods to allow for individual likes and dislikes, and for the availability of food stuffs; and through the ability to vary the diet, we can avoid monotony. The amateur dietitian should be instructed in the palatable preparation of food, the proper division of the food allowance into the three meals of the day, and the place of green vegetables in supplying bulk to the diet.

In a mild, easily controlled case, rough food measurements may do. In a delicately balanced case, insistence upon the purchase and use of scales, weighing in grams, may avoid the use of insulin.

5. ALLOW AT LEAST THREE DAYS FOR THE ACCUMULATED SUGAR TO RUN OFF. Then have the patient submit the 24-hour urine, or, better still, each separate voiding. Use the opportu-



nity to inquire into and to correct any mistakes that are being made.

If all has been done correctly, and there is not a material reduction in glycosuria, the patient will probably require insulin. If, however, there is a substantial reduction, even though the glycosuria has not entirely cleared up, possibly a slight reduction in the food intake, or actually weighing the food allowance, rather than guessing at it, may suffice.

About three out of four of our adult diabetics can get enough food for comfort, and yet keep the diabetes under control, without insulin. Sometimes one has to be aided to become sugar-free with insulin, and can later abandon it as his carbohydrate tolerance increases.

It is well to learn the exact level of blood sugar at which sugar appears in the urine, i. e., the individual's renal threshold for sugar. This is helpful because in some emergency, negative urine will be reassuring, *only if we know the threshold is not high*. The usual, or average, threshold is 170 mgm. of blood sugar per 100 c.c. of blood. But this is quite variable: some are much lower, approaching the so-called "renal diabetes:" some have thresholds of 200 mgm. or higher. These latter might easily slip into a dangerous state of hyperglycemia while we fool ourselves into thinking there is no danger because the glycosuria is relatively small.

6. Finally, remember that ANY COMPLICATING FACTOR, however trivial it may seem—a common head cold, a mild diarrhea, the inception of pregnancy—MAY UPSET THE BALANCE. Unless the patient is forewarned and instructed in this possibility, he may slip into coma, or other grave crisis, in an incredibly short time.

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### SEVERE DYSMENORRHEA—WITH REPORT OF CASES TREATED BY THE CLELAND OPERATION.\*

By C. J. ANDREWS, M. D., F. A. C. S., Norfolk, Va.

The treatment of severe dysmenorrhea has not so far been found to be a universally satisfactory or successful undertaking. Most mild cases are relieved by hygienic and medical means. Those not so relieved eventually become candidates for surgical treatment. I think all will agree that this treatment has

been notoriously ineffective in a very considerable proportion of cases.

From time to time during the past one hundred years many new procedures and treatments have been proposed. Probably most of these have added something to our resources, but no method has fulfilled the expectation of its originator. The purpose of this paper is to briefly review the subject and give such evidence as I can of the value of an operation devised by Cleland, of Toronto, and reported by him in 1923.

Dysmenorrhea is often associated with pelvic pathology, particularly with pelvic inflammation, myoma, retrodisplacement of the uterus, and ureteral stricture. Holden<sup>1</sup> analyzed 1,000 patients in the Johns Hopkins Hospital gynecological service and found that 47 per cent were complicated by dysmenorrhea. Treatment of the associated pathology may or may not relieve the dysmenorrhea. This is not the type of case I am now considering, but the class known as primary, or essential dysmenorrhea.

Margaret Sturgis,<sup>2</sup> in 1923, studied 2,077 employed women, and reported 306, 14.7 per cent, as suffering pain with periods, but only 44, 2.2 per cent, had severe handicap. Elizabeth Van Dyne<sup>3</sup> studied 3,077 students at Goucher College and found that in the period from 1900 to 1907 the severe handicap class was 7.1 per cent. During the period 1923-24 this was reduced to 3 per cent. This great reduction was attributed to more general participation in athletics, and systematic physical training.

Pain with periods usually begins several years after the first appearance of the menstrual periods, but in some cases the first and subsequent periods are extremely painful. Watkins<sup>4</sup> believed this occurs only in cases of infantile uterus.

#### ETIOLOGY

We do not know what causes dysmenorrhea, though the literature abounds with theories which I shall not attempt to enumerate. Doederlein<sup>5</sup> observed that the mucous membrane of the cervix of patients who suffer with dysmenorrhea was more sensitive at all times. He believes that the repression of sex is an element in the nervous condition, and cites in support of this theory the frequent improvement after marriage. It is generally agreed

\*Read before the Norfolk County Medical Society, June, 1929.

that there is a deficient development and an abnormal nervous system.

#### TREATMENT

The prophylactic treatment is reasonably effective. This consists of intelligent hygiene of living, particularly regarding exercises, and general attention to recognized rules of health. Boarding schools have been in the past prolific producers of dysmenorrhea. The mental attitude of the patient is important. The first mistake is usually made when the mother or doctor advises the girl with the first period to remain in bed. She should be told earlier that the period will appear, but that it is a normal occurrence and should not interfere with usual habits of life. All of the endocrine products, including ovarian extract, pituitary, thyroid and suprarenal, have been recommended as a cure. Probably all have been helpful. In those cases in young girls in which hypothyroidism has been demonstrated, thyroid has at times given spectacular results. Hertzler,<sup>6</sup> who lives in a goiter belt, has seen great benefit from the use of the iodides. He believes that any local treatment is unnecessary and useless. Electricity has been used with benefit, and we look for more help from this in the future. A large number of drugs have been recommended. Opium will relieve the pain, and most severe cases have resorted to it.

#### OPERATIVE TREATMENT

De Weiss, in 1826, dilated the cervix with metal bougies and reported good results. Simpson,<sup>7</sup> in 1843, split the cervix. Dudley,<sup>8</sup> in 1891, described his operation which consisted in splitting the posterior lip and suturing in such a way as to widen the canal. This operation was rather widely used. The Pozzi<sup>9</sup> operation was another cervix splitting method. This was described in 1909. None of these incised the internal os. Heyward Smith,<sup>10</sup> *Lancet*, 1890, recommended dilating to 12 Hegar, and making bilateral incision of the internal os. A stem pessary was used for five days. Watkins,<sup>4</sup> in 1914, reported 25 per cent cures with the stem pessary. Cleland,<sup>10</sup> of Toronto, in 1923, described his method, the object of which is to leave the os as it should be normally after labor. The cervix is dilated as far as possible with graduated Hegar dilators. The internal os is then incised on either side with a blunt pointed bistoury until the cervix will admit a 15 Hegar. The uterus and cervix

is then packed with iodoform gauze, which is allowed to remain eight days. He believed that, no matter what the cause, the trouble is in the musculo-fibrous band at the internal os. He reported using this method 230 times, and was able to follow 175 cases. Of these 138 were completely cured or markedly relieved. Twenty-nine cases had partial relief. There was no improvement in eight cases. Two of these were subsequently relieved by making a full incision, which for some reason had not been done at first.

I have used this method a number of times in severe cases since this work was reported, and have selected four cases for this report which were particularly resistant to other forms of treatment.

My *first case* was a patient about twenty years old on whom I had used practically all drugs usually recommended, and had also done a "D & C" and suspension of a retrodisplaced uterus without any benefit more than possibly one month. She required morphine, gr.  $\frac{3}{4}$ , to give any relief. I did not have a Hegar dilator at that time, but used the French scale sounds. The internal os was cut to admit 19 F. This gave entire relief for about one year, when the trouble recurred. This patient has never been so bad as before, and so far has not consented to have the second incision made.

*Case 2.*—Age twenty-six; married one year. Periods began at age thirteen, duration five days, scant flow. Pain began one year after periods first appeared. The period pain began just before or as the flow started and was not relieved by freer flow. Pain was intense and continued twenty-four hours. The pain was described as a dull ache in addition to severe cramps which were intermittent. The suffering was much like that experienced in painful first stage of labor. Opiates were always required during period. Examination showed a young woman, rather pale, nervous, and apparently in sub-normal health. The uterus was rather small, low in pelvis, and in mid position. There was a small erosion of the cervix.

Previous treatment: This patient had had the usual medical and endocrine products. The appendix had been removed, the cervix dilated, and stem pessary inserted. No relief followed this operation. As this patient had more pain on the right side, which the appen-



dix operation had not relieved, I thought it best to investigate the ureter, which was done before giving any anesthetic. A 3 1/3 bulb was passed into the right ureter. There was a definite hang in the pelvic portion. The patient said this was the same location as the continuous pain, which was worse at periods. The cervix could only be dilated to 8 Hegar, but the internal os was incised to admit a 14. The packing was placed in the usual way. This was done one year ago and the patient, when last heard from several months ago, was free from pain.

*Case 3.* — Age twenty-nine; occupation teacher. Periods began at twelve years, duration five days, with clots. Very severe pain first two days, causing her to lose two days from school, and requiring opiates. This patient had had all of the treatments without any help. There was a history of several attacks of appendicitis. The appendix was removed at time of cervix operation, which was done in March, 1928. The usual Cleland operation was done, and the relief has been entirely satisfactory.

*Case 4.*—Age twenty-six; married five years; no children. Pain extremely severe the first day, requiring rest in bed and opiates. Operated June 14, 1927. Cervix dilated to 10. Considerable endometrial tissue removed with curette. Internal os incised to 15, and packed. Relief has been satisfactory.

This operation has been done for *only one patient* who has had, so far as I know, *no relief*. This is probably the most interesting and instructive case I have treated. I saw this patient first in August, 1928. She was referred to me by Dr. J. W. D. Haynes. Patient, age twenty-five years, married, one child—age nine months—normal labor. The periods began at sixteen, and dysmenorrhea developed soon afterward. Several months after labor, periods returned with severe pain, which had increased in intensity since, and for previous two months had been most distressing, requiring opiates or an anesthetic to relieve. The menstrual history was 16—30, irregular, three day duration. Typical severe cramps in lower abdomen. Cramps were relieved after flow was well established, which did not occur for many hours after flow started. A severe pain in top of head accompanied pelvic pain.

Patient was over-weight; blood pressure 140/90. Pelvic examination showed uterus normal size. Fundus retrodisplaced, but could be brought up. Adnexa normal. Cervix—bilateral laceration with erosion. Urine—some pus cells, highly concentrated; albumin 1 plus. The cervical erosion was treated by cauterization. Patient had appendectomy four years ago, and had had four or five cervical dilatations, one of these having been done since labor. The usual medicines and biological products had been used. The evidence pointed so strongly to a nervous condition, which would probably not be helped by local treatment, that I advised her doctor to have her consult a neurologist. Dr. F. H. Redwood admitted her to the hospital for study. He found no free HCl in gastric secretion; metabolic rate plus 4; blood calcium 9.5; no evidences of cerebral lesion. He believed the condition probably due to pituitary disturbance, and gave pituitary extract and advice as to management. The diagnosis was hysteria with endocrinopathy.

On October 10th, Dr. Haynes wrote that the patient was no better, and had had the worst time with her period she had ever had, and said "she must get some relief in some way or these spells will kill her." During this time another "D & C" had been done, and a stem pessary used. I told him to bring her back. After consultation with all medical attendants, I decided to investigate the uterus under anesthesia and correct the retrodisplacement. The cervix was open to 12 Hegar; the internal os was incised sufficiently to admit a 15 sound, and packed. Curette showed hyperplasia of endometrium. The retrodisplacement was corrected by round ligament suspension. Again the patient went home happy. A letter from her doctor several months afterwards says she has had no improvement. It is possible that we have overlooked some pelvic pathology, as urethral stricture. I would certainly investigate this if I had the opportunity, which under the circumstances is not likely. I have not been able to get her back again. It is possible that diathermy might help, but most likely she needs treatment in a sanitarium where she can be advantageously managed, at least at the time of her period.

My experience with the Cleland operation is too small to draw conclusions, but if added to the contributions of others, a sufficiently re-

liable foundation may be constructed on which to establish the truth about it. My own impression is that it gives relief in most cases of severe obstructive dysmenorrhea, particularly those not relieved by other means. It cannot be expected to cure well established habit neuroses unless suitable institutional management can be provided.

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*Medical Arts Building.*

'Tis friends who make this desert world,  
To blossom as the rose,  
Strew flowers o'er our rugged path  
Pour sunshine o'er our woes.

—Selected.

## ACUTE ABDOMINAL PAIN.\*

By W. H. WALLINGFORD, M. D., Princeton, W. Va.  
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In 90 per cent of all disease pain is a prominent symptom at some point in its course. Pain is by far the most prominent symptom in all abdominal disease. It is the thing most dreaded by the patient and the thing more than any other that will cause him to seek medical aid. Its intensity, location, radiation, persistency and relation to other symptoms will often alone point to a correct diagnosis. The cessation of pain in abdominal disease is always welcomed by the patient, but, instead of being a favorable omen, it often indicates a grave prognosis. Pain is the most valuable sign to the abdominal surgeon, and, given but one symptom upon which to make a diagnosis, he would invariably select pain. Pain in the abdomen does not always mean abdominal disease, but, on the other hand, abdominal disease almost invariably means pain. In fact, a diagnosis of any acute abdominal condition with no pain is always to be regarded with suspicion.

In making a diagnosis of any acute abdominal disease the two paramount conditions necessary for a correct diagnosis are a painstaking history and a thorough physical examination. If confirmatory evidence is needed, the laboratory, X-ray and cystoscope will often give valuable aid. In case a diagnosis cannot be positively made, an exploratory laparotomy should be performed rather than spend too great a time in trying to make a sure diagnosis. The longer operation is delayed in the acute abdomen the greater the danger of the patient not recovering. Owing to the fact that all abdominal pain does not mean abdominal disease, patients with abdominal pain are occasionally subjected to operations where no pathological condition is found in the abdomen.

To properly interpret abdominal pain as a symptom, a brief review of the nerve supply of the abdominal wall will be of material aid. The abdominal parietes are supplied by the lower 6th intercostal nerves, both anterior and posterior branches, and terminate in the recti muscles on each side, and give sensation to the mid-front of the abdomen. The hypogastric and inguinal regions are supplied by the last dorsal, the ileo-inguinal and ileo-hypogastric nerves. The posterior wall of the abdomen is

\*Delivered before a meeting of the Clinch Valley, Virginia, and Mercer County Medical Societies, at Bluefield, W. Va., May 9, 1929.



supplied from the lumbar and sacral plexuses. The pneumogastric nerve runs along each side of the esophagus, the right branch going to the posterior wall of the stomach, helping to form the solar plexus, and the left to the anterior wall. The sympathetic enters the abdomen below the diaphragm and forms four lumbar and four sacral nerves, ending in the coccygeal ganglia. The phrenics from the 4th cervical communicate with the solar and hepatic plexuses and thus have visceral connections. The nerve supply of the viscera and visceral peritoneum is derived from the various sympathetic plexuses, while the parietal peritoneum is supplied directly from the spinal nerves and the phrenics. The spinal nerves contain a great many more sensory nerves than the sympathetic. Therefore, the parietal peritoneum is very sensitive to pain, while the viscera and the visceral peritoneum are not sensitive or very slightly so.

Acute abdominal pain may be divided into pain from conditions in the abdominal wall, pain from conditions within the abdomen itself and pain due to extra-abdominal conditions.

Erysipelas of the abdominal wall produces sometimes rather acute burning pain. The diagnosis is the same as for the same condition in any other part of the body and is so characteristic, that the condition is easily recognized.

Neuralgias of the abdominal wall cause very acute pain in the abdomen and may simulate intra-abdominal conditions. This is accompanied by tenderness that is increased by pinching the muscles between the fingers and is relieved by deep pressure, thus differentiating it from peritonitis which is just the opposite.

Abscess of the abdominal wall may be confused with abdominal conditions. The symptoms of heat, redness, swelling, local tenderness and fever, not accompanied by vomiting, usually point to the correct diagnosis.

Hernia involves both the abdominal wall and the viscera. It does not cause acute pain unless it becomes strangulated. It then becomes an acute surgical condition demanding immediate operation. You have a history of hernia that fails to be reduced accompanied by all the symptoms of intestinal obstructions. Delays are extremely dangerous but early operation before gangrene or peritonitis develops offers good chance for recovery. In these cases

a thorough inspection of the abdomen is important. The writer was called to see a female patient several years ago and the family physician had failed to discover the cause of her abdominal pain because the bed clothing had not been removed low enough on her abdomen to reveal a strangulated hernia which was present.

Occasionally severe pain is complained of in the abdomen that may or may not be accompanied by any great gastro-intestinal disturbance. Oftentimes there is considerable fever and the diagnosis may be obscure. In a day or two the characteristic blebs of herpes zoster clear up the situation.

Inguinal adenitis occasionally causes rather acute pain about the lower abdomen. The history, absence of impulse on coughing and physical examination differentiate this condition from femoral hernia, the condition with which it may occasionally become confused.

Tumors of the abdominal wall only cause acute pain when their growth is rapid or when they incorporate nerve fibers within themselves.

Appendicitis is probably the most common cause of acute pain in the intra-abdominal conditions. The pain in appendicitis at first is acute and general and is generally greatest around the umbilicus due to the fact that the appendix receives its nerve supply from the same source as the small intestines. Pain is followed by vomiting, fever, rigidity of the right rectus and tenderness over McBurney's point. A leucocytosis is present. The late John B. Murphy, of Chicago, claimed that if pain was not the first symptom in an intra-abdominal condition the condition was not appendicitis. A rectal examination should be made in all doubtful cases of appendicitis. This must be differentiated from perforated gastric or duodenal ulcer. The rupture of a gastric or duodenal ulcer produces probably the most excruciating pain of any intra-abdominal condition. The pain comes on suddenly, is very severe, the rigidity very great and you find the characteristic board-like abdomen. Vomiting is severe and shock and collapse oftentimes intervene. Owing to the seeping of the bowel contents into the right iliac fossa, pain and tenderness is elicited later in the region of the appendix. In perforated ulcer, a previous history of digestive disturbance is of little value as oftentimes perforation is the first symptom of ulcer.

In acute gall-bladder disease usually there is a history of digestive disturbance, oftentimes persistent and serious. The pain in an attack is acute and is felt in the epigastrium and along the border of the right ribs and to the right shoulder, occasionally to the left. A stone in the common duct produces the most excruciating pain. The presence of jaundice may or may not be apparent, and of itself is of little diagnostic value. An X-ray will often give valuable aid in the diagnosis in this condition. Hepatitis, abscess, cancer and syphilis of the liver also cause acute abdominal pain.

Cancer of the abdominal viscera does not produce acute pain at first but in the later stages the pain is severe. The presence of a tumor in the abdomen with the characteristic symptoms of carcinoma, loss of weight, strength, emaciation, anemia and cachexia usually is sufficient for a diagnosis. The X-ray is often a valuable aid in this condition. Intestinal obstruction is often a fatal termination.

Gunshot wounds of the abdomen cause acute pain and require quick diagnostic ability as to the amount of damage done. If there is a doubt as to whether the wound has penetrated the abdominal viscera, but little time should be lost and an exploratory laparotomy should be performed. If the viscera are not injured, the patient's chances of recovery have been jeopardized very little, if any, while, on the other hand, if the viscera have been punctured, too great delay to determine the exact condition may mean the difference between recovery and death.

Rupture of the abdominal viscera from external violence causes acute lancinating pains in the abdomen at the time of the injury but oftentimes it soon passes off and the patient may not again suffer acute pain until some complication develops. The hollow viscera are the most likely to be ruptured, especially if distended, thus the stomach just after a meal, the bladder while full, and the kidney are probably the most common viscera ruptured, although any viscera is liable to this accident.

A sixteen year old boy several years ago was brought to the Princeton Hospital. He had complained of intermittent pain in his abdomen for thirty-six hours. His temperature was 102, pulse 120, respiration 24. His abdomen was distended considerably. Marked tenderness was elicited all over his abdomen but was greatest over McBurney's point. How-

ever, he was markedly pale and a blood count showed a deficiency of red cells. A probable diagnosis was made of a ruptured appendix with peritonitis. The abdomen was opened and found full of blood. The spleen had an extremely bad stellate laceration. He at first denied any injury until a neighbor stated that she saw him wrestling with another boy and saw the other boy fall down upon his abdomen with his knees. The patient then admitted this fact but stated that while he suffered severely for a few minutes his pain then ceased and had no further pain for thirty-six hours.

Intestinal obstruction is probably the most dreaded condition within the abdomen with which the physician or surgeon has to deal. In this condition the general practitioner is the man of the hour. His ability to properly diagnose and promptly advise surgical interference early oftentimes spells success or failure. It is well for the family physician to keep in mind in intestinal obstruction the old adage, "Let not the sun rise nor set on a case of intestinal obstruction without operation." The most common types of intestinal obstruction are intussusceptions, volvulus, kinks or bands around the intestines, carcinoma or tumors, fecal impaction and mesenteric thrombosis or embolism. The pain is severe, vomiting is persistent, becoming stercoraceous, the abdomen is distended and there is failure of bowel evacuation of fecal contents or gas. Operation should be done promptly, oftentimes the two stage operation being advisable.

Mesenteric thrombosis and embolism occur from the blocking or cutting off the blood supply in the mesenteric blood vessels. The pain is severe and, if due to blocking of the superior mesentery, occurs above the umbilicus; if in the smaller mesentery, below the umbilicus. The onset of embolism is sudden, but the onset of thrombosis is more slow, with all the signs of obstruction in both. This condition is usually found in patients beyond fifty and usually associated with arteriosclerosis.

Dysentery causes griping pain in the abdomen. The pain is paroxysmal in character, accompanied by small, frequent, mucous, blood-tinged stools.

Peritonitis is usually secondary to some other condition and is one of the most distressing conditions in the abdomen. There is severe pain, distention, nausea, and vomiting, and tenderness increased on deep pressure, and the abdomen has a doughy feel. Pain is



absent upon pinching the abdominal muscles.

A diverticulitis causes severe pain in the abdomen, but the condition is rarely diagnosed prior to operation.

Caries of the vertebrae, spinal tumors and osteomyelitis of the vertebrae are other conditions that sometimes cause acute abdominal pain.

Intestinal colic is one of the most common causes of acute abdominal pain. It is seen most often in boys during the green apple or cider season. The pain is severe and griping and comes on suddenly, but usually there is no disturbance of the pulse or temperature. There is usually not much rigidity except during a paroxysm of pain. A dose of castor oil followed by copious evacuation of the bowels usually cures the case. If the pain persists beyond two or three hours after complete evacuation of the bowels some other condition is usually present.

Since the advent of typhoid vaccine, typhoid fever is fast becoming obsolete, but mention should be made of typhoid as one of the conditions causing acute pain in the abdomen. Sometimes the pain is severe at the beginning, and the onset may be rather sudden, although it is occasionally confused with appendicitis. A careful history with the aid of the laboratory will render this mistake rare. Perforation late in the disease causes acute sudden pain in the right iliac fossa with collapse, and prompt surgery offers the only hope of recovery. Until a few years ago this disease was one of the most common abdominal diseases. Of late years typhoid fever's place has been usurped by abdominal influenza. This disease is accompanied by acute pain in the abdomen, vomiting, oftentimes severe, and tenderness and oftentimes muscular rigidity. It has been mistaken for appendicitis and appendectomies have been performed. Again, careful history and thorough physical examination will render this mistake rare.

We have a number of conditions causing acute pain in the abdomen arising from organs peculiar to the female sex. These conditions may be divided into (1) those conditions arising in the womb, and (2) those arising in the adnexa. Acute polyhydramnios is a rare but distressing condition causing acute abdominal pain. Quite a number of pregnancies have quite an excess of amniotic fluid and oftentimes it causes only a feeling of distress, but in those cases in which the amniotic

fluid is greatly increased *rapidly* there is acute pain and the patient presents a picture much like a heart case, with the abdomen greatly swollen, shortness of breath, feet swollen, and there is inability to palpate the fetal parts. Rest in bed and delivery relieve this condition.

An hydatiform mole, because of its rapid growth, often causes severe pain, especially if hemorrhage takes place in some of the attachments of the mole to the uterine wall. The woman usually considers herself pregnant but has a great deal of pain. If the abdomen is watched, the uterus will be seen to increase in size much too rapidly for a normal pregnancy. Carcinoma may be a sequella of this condition.

Rupture of the uterus causes severe lancinating pain and occurs sometimes in severe prolonged labor, especially following Cesarean sections and from external violence. The use of large doses of pituitrin has been known to cause rupture of the uterus during labor. Prompt surgical interference should be resorted to in such cases. Spontaneous rupture occasionally occurs in one horn of a bicornate uterus and is analagous to the rupture of the tube in tubal pregnancy. A retroverted uterus in the twelfth to sixteenth week of pregnancy may become incarcerated and cause severe pain.

In conditions in the adnexa, rupture of an extra-uterine pregnancy causes the greatest amount of pain. This pain usually comes on suddenly, is very severe and greatest in the affected side, and the patient may faint or feel fainty. There may be considerable abdominal tenderness. Irregular menstruation plus the pain and the finding of a mass in one of the tubes that is *very tender* usually completes the diagnosis. This condition should be differentiated from salpingitis. It also produces severe pain but is accompanied by fever and chills with rapid pulse and all the signs of an acute infection. The history of gonorrheal infection or recent abortion also is of value in making a diagnosis of salpingitis.

A patient was brought to the Princeton Hospital three or four years ago who had called three physicians in two days—one after the other. She complained of pain in her lower abdomen. At the time of the visit of each physician she was in a typical hysterical convulsion and assumed the characteristic opisthotonos position. The first two physicians each

gave her a "hypo." of  $\frac{1}{4}$  gr. morphine and told her she was just nervous. This morphine would relieve her for two or three hours, then she would complain as before. The third physician made a vaginal examination and found a mass about the size of a quart cup in her left side. At operation a gangrenous ovarian cyst was removed that had a twisted pedicle. This case shows that a patient may have a typical hysterical attack and still be suffering from a severe pathological condition.

Of the conditions external to the abdomen that cause acute abdominal pain, probably chest diseases are the most common. Under this heading we find pneumonia, diaphragmatic pleurisy, diaphragmatic abscess, abscess of the lung, hemorrhage into the finer bronchioles of lower lobes of the lungs, fractured ribs involving the pleura or lungs, and artificial pneumothorax, all causing acute abdominal pain.

In pneumonia, especially in children, it is not at all uncommon to find cases of lower lobe pneumonia simulating appendicitis or gall-bladder disease, and the chest is entirely overlooked. Quite a number of surgeons of prominence have operated upon patients for appendicitis to find it normal and then find the patient with a consolidated lower right lung next day. A good rule to follow to avoid this mistake is to give the chest in all acute abdomens the same careful examination as is given the abdomen. It should not be lost sight of that these two conditions may be present at the same time. A blood count may not aid, but it should be borne in mind that a white count of more than 20,000 cells is rare in appendicitis. A rectal examination may confirm in a doubtful case the presence of appendicitis. Oftentimes X-ray of the lungs will give valuable aid in these cases. Pleurisy causes acute pain in the abdomen and if the chest is examined will rarely be mistaken for intra-abdominal disease.

Hemorrhage into the finer bronchioles of the lower lobes of the lungs causes acute pain in the abdomen, but, as it is not usually accompanied by any other abdominal symptoms it is not commonly mistaken for intra-abdominal disease.

Artificial pneumothorax of the lower part of the lungs causes pain in the abdomen. This occurs at the time the pneumothorax is per-

formed and thus the cause of the pain is obvious.

The next most common condition under this heading is some kidney disease. In these conditions the laboratory, cystoscope and X-ray are of paramount importance as an aid to correct diagnosis. Kidney or ureteral pain is of two kinds, inflammatory, and non-inflammatory. The pain in the inflammatory type is aching in character and is increased by palpation and pressure, and is oftentimes increased by deep breathing. In the non-inflammatory type the pain is more severe and paroxysmal in character and disappears oftentimes very suddenly. Pain in the kidney involvement is felt in the region of the kidney and is referred to the lower iliac or suprapubic region. In ureteral involvement the pain is usually referred to the penis, scrotum and perineum.

Acute pain is present in from 75 to 80 per cent of pyelitis. It radiates from the back to the thigh and perineum, sometimes to the epigastrium. The pain in renal calculus is paroxysmal when the stone is too large to enter the ureter, and constant if the stone becomes lodged or if infection is present. The pain radiates to the crest of the ilium and anterior abdominal wall, groin, and testicle. Lane-Roberts divided pyelitis of pregnancy into three types, (1) the renal type where the pain is complained of in the back and loin, and the patient has the symptoms of infection but complains rarely of any kidney disturbance; (2) the abdominal type where the pain is very severe in the abdomen, with distention, tenderness, rigidity, nausea and vomiting. It is often hard to differentiate this type from appendicitis, cholecystitis or intestinal obstruction; (3) the generalized type where the pain in the abdomen is slight and the symptoms and signs are not localized in the abdomen.

Dietl's crisis oftentimes is confused with appendicitis and other abdominal conditions. Dr. Kelly claimed a good method of determining the question between appendiceal pain and that of a movable kidney was to try to produce the same pain in the kidney by injecting its pelvis and at the same time measuring its contents.

Acute pain is found in the terminal stages of some cases of tuberculosis of the kidneys due to blocking of the ureters.

Tumors of the kidneys, ureter or bladder



cause acute pain when they cause obstruction, and hemorrhage is an early symptom.

Perinephritis causes pain over the kidney region with tenderness and edema. This with the constitutional symptoms points readily to the condition.

Injuries to the kidneys may cause acute abdominal pain accompanied by tenderness and dullness and oftentimes discoloration. Blood is found in the urine, and, if the injury is severe, shock is oftentimes marked.

Retention of urine causes severe pain in the abdomen, and, while attention to the outflow of urine with a physical examination will readily demonstrate the condition, it has been mistaken for tumors, pregnancy, abscess, etc. Catheterization of the patient immediately relieves the condition, but in cases of stricture, enlarged prostate or other conditions blocking the outlet, this may be impossible and may require surgical intervention to relieve. A female patient was brought before a student body in one of our large hospitals several years ago to demonstrate a threatened abortion in a six months' pregnancy. The nurse, carrying out routine orders, catheterized her just before she wheeled her before the class. A physical examination revealed that her pregnancy had disappeared.

Acute pancreatitis is one of the most fatal diseases causing abdominal pain. The patient is usually beyond forty but occasionally younger. The patient is suddenly stricken with severe pain that is almost impossible at times to relieve, even with large doses of morphine. The vomiting is severe and persistent, resembling intestinal obstruction, but is never fecal. Emaciation takes place rapidly and collapse soon ensues. The pulse is usually rapid, but, if collapse does not occur, it may remain slow and strong. The temperature is usually not high. This is regarded by most physicians as a surgical condition. Deaver reports that medical treatment shows a mortality of from 80 to 90 per cent while those cases treated surgically showed a mortality of from 38 to 83 per cent.

The pain of gastric crisis resembles oftentimes gall-bladder disease, ruptured ulcer, or appendicitis. At times gastric crisis is seen as the initial symptom that the patient complains of; in these cases mistakes have been made and the patient submitted to operation. The previous history, examination of pupils, station and knee jerk, a blood Wassermann—

if negative, a spinal one—will usually reveal the true condition.

Pericarditis resembles gall-bladder disease at times as to location of pain, and is accompanied by vomiting, tenderness and some rigidity in the epigastrium and over the gall-bladder. In a few hours the characteristic friction rub accompanying the heart beat reveals the true condition.

Angina pectoris comes on usually after forty, most often about sixty. The pain is vice-like under the sternum, radiates to the left shoulder and down the left arm. In some cases it radiates to the epigastrium and the gall-bladder region, with a resistance of the abdominal muscles and tenderness. It is then confused with indigestion and gall-stones. The patient may have a number of attacks and may die suddenly in one of them. Many of the distinguished individuals who are reported in the press throughout the country as dying of "acute indigestion" no doubt die of angina pectoris.

Gauss described a condition called angina abdominis in which the symptoms are abdominal pain that is localized around the umbilicus. Ortnor states that, "The pathological basis of the pain appears to be an arteriosclerotic narrowing of the arterioles supplying the intestines which forces the bowel to work under stress, thereby giving rise to visceral pain."

Clinton gives subcostal neuritis as a cause of acute abdominal pain due to the repeated trauma of the 11th and 12th intercostal nerves being pinched between the lower rib and the crest of the ilium in short-waisted individuals and in those having unusually long 11th and 12th ribs. The pain is described as tooth-like. The cure is to resect about one inch of the end of the rib with the nerve.

Brennan claims that tonsillitis and "throat infections" cause acute abdominal pain that is often severe, intermittent and paroxysmal, and referred to the umbilicus, and sounds a warning that in all "throat infections," instead of excluding appendicitis, it is to be expected as a complication or sequel. He does not, however, explain the nerve connection that produces the abdominal pain.

The pain of lead poisoning may simulate acute abdominal diseases, but history of the occupation of the patient, the blue line along the gums, anemia, the characteristic wrist-drop, together with a careful examination, will show the real cause of the condition.

The pain of hysteria can simulate any acute abdominal condition. Hysterical patients who have been around hospitals often and thus learn the symptoms of various diseases, can "throw" attacks of most any disease. It should not be lost sight of, however, that these patients may have a typical hysterical seizure and still be suffering from severe pathological condition.

Thyrotoxicosis may produce, in rare cases, pain, vomiting and diarrhea, that will give rise to a suspicion it is some intra-abdominal condition. The symptom of goitre and the history will lead to a satisfactory explanation.

It has been said that uremia can produce pain that will simulate any abdominal condition. With our modern methods of diagnosis, this condition is rarely mistaken now for any operative condition.

Reisman reports a case in a girl who had severe pain in the right hypochondrium with a leucocytosis, fever and vomiting, that was diagnosed appendicitis, and she was prepared for operation. Later evidence of diabetic acidosis was found. In getting her history it was discovered she was a diabetic and had temporarily run out of insulin. A dose was administered and she was promptly relieved.

### MEDICAL ETHICS.\*

By JOHN W. PRESTON, M. D., Roanoke, Va.

It is with some trepidation that I undertake to discuss the subject assigned me, even in the briefest way; for what medical man is there who fails to look askance upon the mention of ethics, or who, upon their mention, fails to have aroused within him gloomy forebodings of a rehash of a time-worn subject? Furthermore, may not the whole subject be at once disposed of as an embodiment of the golden rule, and by a reminder that example is much more worth while than precept?

It is a truism that a physician who is of a representative type needs but few rules of conduct, and, conversely, that the practitioner with whom honor is a secondary consideration will feel bound by none, no matter how elaborate the code.

Granting that these things be so, yet one cannot upon reflection escape the realization that with the multiplicity of changes wrought within recent years in the fabric of government and industry, as well as in the practice

of medicine itself, many revolutionary things have happened which are of vital interest as relates one physician to another, and likewise touching the relation of the practitioner to the public.

### EMPLOYMENT OF PHYSICIANS BY SOCIETIES AND ORGANIZATIONS

Looming large on the horizon today are such questions as the employment of physicians by societies, organized for the manifest purpose of unduly cheapening the practice of medicine; insurance and fraternal organizations employing physicians to do family practice in a wholesale way; corporations composed of laymen employing physicians and advertising in a commercial way to attract patronage; last, but not least, the experiment of state medicine which threatens to demoralize the practice of medicine in parts of Europe, and which some think is in an insidious way creeping into this country. It is through agencies such as these that here and there physicians are yielding to the siren voice of quick money obtained with least expenditure of energy, resulting in new and unforeseen problems arising in ethics. We may well pause to consider a few of these.

In so far as organizations of a strictly mercenary nature are concerned, the old rules of ethics may be applied simply and directly. The big problem presented is in such cases as those which fall upon a middle ground with no precedent to guide, such, for instance, as a corporation employing physicians upon salaries, the purpose of the organization being ostensibly to supply medical service to the poor at or near cost, yet making little or no effort to exclude as patients those who are well able to pay a physician a reasonable fee. The question arising in such case is whether a physician who desires to be ethical can affiliate with such an organization, and, likewise, what are the ethics of his relations to other physicians.

### THE EFFORT TO REDUCE THE COST OF SICKNESS

Indirectly related to ethics, and yet a matter in which every medical man should be interested is the commendable experiment which is being made to reduce the cost of hospitalization and medical care in case of the individual who can pay something, yet whose family suffers if he be compelled to pay at the same rate as his more fortunate neighbor. Undoubtedly little more than a nominal fee should be exacted by a physician in rendering service to this class of patients, but how shall it be ad-

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justed as relates to hospital fees, and as relates to those who can and ought to pay a better fee?

#### THE RELATION OF THE GENERAL PRACTITIONER TO HEALTH DEPARTMENTS

May I not also with propriety here speak a word as to the strained relations which occasionally arise between physicians in the employ of health departments and family physicians, all unintentional upon the part of either worker, and most often in the matter of the borderline as between the introduction of the newer methods of prophylaxis, and of vaccine therapy closely related thereto, and nose and throat and chest clinics? Further, is there any basis in fact for the apprehension upon the part of some that from this source state medicine is now finding a beginning and, like a small cloud upon the horizon, portends a storm to come? From the broader view it is evident that among the physicians of the country who are at the head of the various health departments there are differences of opinion as to where the duties of their respective departments end and those of the family physician begin, and that here and there are misunderstandings and a degree of friction, the elimination of which, in the best interests of all concerned, will require broad vision and exercise of tolerance; for no rule, or set of rules, of ethics can be made to apply.

Emphasizing the importance of cooperation and of the use of common sense in relation to ethics as regards the activities of physicians in the employ of health departments, I would digress to say it is just a little difficult to realize at first thought that were it not for the publicity which the health officer can and should give to the newer means of prophylaxis of disease through vaccinations and otherwise, it would in most cases require an indefinite period of time before the public could be convinced of their efficacy, and they could be added to the armamentarium of the practitioner. Furthermore, due credit must be given to Health Boards in the matter of popularizing, by advertising and otherwise, periodic health examinations both in children and adults, to the end that their value may be appreciated, and, as paradoxical as it may seem, eventually add very materially to the physician's income from a source as yet but little developed. Witness in point the effort now being made by the Board of Health of our

State to evolve a system whereby the examination of children of pre-school age and school age may be gradually transferred from the domain of a physician employed by school boards to that of the family physician.

#### RADIO AND NEWSPAPER PUBLICITY

The advent of the radio has added a new and wholesale approach of medicine to the masses of our people and has brought with it, perhaps as yet unappreciated, opportunities, privileges and obligations—opportunities and privileges, among others, of awakening the interest of all in what scientific medicine has to offer, and of exposing quackery, both within and without the profession. The obligation to educate those who can be interested, as relates to the prevention of disease, to the spread of epidemics, and to health examinations.

Manifestly the health officer can with perfect propriety make use of any method of approach that may seem most helpful to his community, but what are the duties and limitations of the private practitioner? When it comes to the matter of the name of a private practitioner appearing in the columns of newspapers or upon the broadcasting program, no matter how good his intentions, his position is precarious; for there are those who are apt to criticize. Like Caesar's wife, he must be above suspicion. Yet occasionally conditions do arise which render it advisable if not imperative that representatives of the profession take part in a public way. Manifestly, however, in the event of such occasion arising, it is most desirable that those taking part should be selected by the local medical organization and the procedure be made as impersonal as possible. Indeed, it may be a question worthy of consideration as to whether medical organizations, as such, should not be more alert than is their custom and in a proper way supply the public more directly and more freely with such information as it may desire relative to medical activities, and to health matters.

#### WORKERS IN INSTITUTIONS AND HOSPITALS

Touching more or less directly the ethical relation of the private practitioner to practitioners working in group clinics and in the larger institutions is an undercurrent of feeling, which undoubtedly exists, that many of these institutions have now grown so large that the human touch is lost both as regards the patient and the physician referring him. As relates to the patient, it cannot be denied

but that too often in the well meant efforts of specialists to leave undone no scientific method of procedure, the patient is referred from one department to another, each making a charge for service, with the result that the limited finances of the patient are sometimes overlooked and he returns to his family physician for a follow-up with his resources depleted to such an extent that the real burden falls upon him, the family physician, who, knowing all the circumstances, is led to wonder if either he or his patient has been treated exactly fairly. There are so many angles to this phase of present day institutional practice that one wishes that time would permit a freer discussion.

Even yet, though happily rarely, one encounters the physician imbued with sufficient ego, tinctured undoubtedly with avarice, who makes a practice of exacting from his patient "all the traffic will bear," and who endeavors to justify such practice from an ethical standpoint by the unwarranted feeling upon his part that exceptional service is being rendered, and that large fees serve the useful purpose of impressing the patient with the prestige of his physician. I need not remind you that such practices violate the spirit of medical ethics no less than do secret fee-splitting and other like reprehensible practices, and tend to bring into disrepute the whole profession.

#### THE GOAL OF MEDICAL ETHICS

It is with a measure of pride we reflect that, although the profession of medicine follows a code of ethics originating in ancient times, this code was founded upon the basic principles of fair and just dealing man to man, and, building upon it, our profession has developed and broadened until the course of study necessary in mastering it in this modern day is more exacting than that of any other profession. It is through our obligation to these same ethics that the cultural, humanitarian and moral standards must be maintained upon a like high plane.

Having frankly touched upon some of the possible lurking dangers, it is hoped that none will draw the inference that the tendency of modern medicine as a whole is mercenary, or that the newer things in medicine fail to carry with them the altruism of the old. The fact is that progress has been so rapid, it is a wonder there have not been even greater malad-

justments. Yet our respective communities look to such organizations as this of ours to bring to light and smooth out any irregularities that may exist; for the broader ethics in medicine mean equally as much the maintenance of a fair and just relation to the individual layman and to the mass of people, as it does one physician to another and to the profession of medicine as a whole.

*Shenandoah Life Building.*

#### MEDICAL ETHICS.\*

By W. R. CUSHING, M. D., Dublin, Va.

When your secretary notified me that I was expected to take part in this discussion, I wrote him a very sweet note of appreciation and thanks for remembering me, in which I stated that, if present, I would listen with a great deal of interest and pleasure to anything Dr. Preston would say—and I have done so, Dr. Preston—but that I much preferred to remain silent. I received an answer that would be classed as diplomatic, non-committal, you know, and that was the last I knew of it until the programme was received with my name on it. Was that ethical treatment? Was due consideration shown me as an individual, and was due consideration shown you, fellow members of an honorable profession, who will have to listen to what I have to say?

I imagine I can hear a deep breath of relief from you, when you realize that in the discussion of this subject not a disease or a germ will be mentioned—no bacteria or bacilli, no toxins or antitoxins, no sepsis or antisepsis, no hypers or hypos, no reference whatever to leucocytes, lymphocytes, phagocytes or parasites, and last, but not least, no glands. Ethics, pure and simple, and ethics alone will demand our attention.

We find in the dictionaries high flown and long drawn out definitions of a science that treats of the "laws of voluntary action or conduct, thus seeking to determine the nature and extent of moral duty." This science they call ethics, and any infringement upon these laws of moral conduct they call unethical. That is not what we mean by ethics either in general or in particular.

Medical ethics is general good conduct limited to followers of our profession. Outsiders are not expected to know much about it. No man can have freedom of action if he is tied down

\*Read at the meeting of the Southwestern Virginia Medical Society, in Galax, Va., September 16-17, 1929.



hard and fast by a set of rules to govern his conduct, and the consequence is that individual members of the profession have given the matter very little consideration, but have gone on, day by day and year by year, using among themselves the ordinary and everyday courtesies and consideration that every well-thinking well-intentioned man would tender to those with whom he comes in contact.

From our point of view, ethics and etiquette are very closely related, and rigid rules for either are absolutely impossible to live up to at all times, owing to the many and varied circumstances under which men are placed. When we consider man in the abstract, what he is, how situated, his make-up, his fallibility, his inborn selfishness, we are not surprised that he falls short at times of a high standard of ethics.

What do *we* (not scientific men busy studying the science of ethics or morals) mean by ethics, and especially medical ethics? I think we mean this: Courtesy, consideration and politeness to our associates—not the cringing politeness of inferiors to superiors, nor the patronizing, condescending politeness of superiors to inferiors, but the freedom and ease that always accompanies the association of equals. Note where this brings us. We unconsciously think of ethics as applying to the higher walks of life—the ministry, the law, medicine, the teaching profession, and a few others. But is that so? There is a standard of ethics applicable to every walk in life. Bankers, corporations, merchants, farmers, manufacturers, laborers, all have a standard of conduct that is ethical for that particular occupation, and without it and without the fact that the rank and file live up to it, this world would be worse than a bedlam.

So, I am sure, we are all agreed that a standard of ethics, meaning by that, courtesy and consideration, unselfishness and a willingness to share, and share alike, both in responsibilities and rewards, is essential in every occupation.

Applying this idea to ourselves, ethical conduct is all important in the medical profession. I am not going to attempt to lay down any well-defined rules as to how a man should conduct himself, even in average circumstances. I could not if I would, and would not if I could. Besides, if I did undertake such a thing, you all may know more about it than

I do. To put the whole thing in a small compass, the Highest Authority the world has ever known, on human conduct, once said, "Therefore, all things whatsoever ye would that men should do to you, do ye even so to them," and I am perfectly willing to let it rest at that.

## PAPILLARY ADENO-CARCINOMA OF THE KIDNEY.

By BEVERLEY F. ECKLES, M. D., F. A. C. S., Galax, Va.  
Galax Hospital.

Statistics concerning primary adeno-carcinoma of the kidney are scanty and unreliable, most of these cases being recorded as hypernephromata.<sup>1</sup> However, a casual glance at recent literature leads to the impression that the rarity of these tumors is more apparent than real. Cabot<sup>2</sup> has recorded two cases, both confirmed by autopsy. Stirling<sup>3</sup> also furnishes a case report, together with a clinical discussion of the subject.

Ewing divides malignant tumors of renal epithelium into two main forms: the papillary adeno-carcinoma and the alveolar carcinoma. He further divides the papillary adeno-carcinoma into two major groups, and one small-sub-group of minor importance: first, those with clear or glassy cells; second, those with granular cells; and, third, malignant tumors arising from simple cyst-adenoma. He states that papillary adeno-carcinoma is much the more frequent of renal growths.

It occurs chiefly in adults, but occasionally in children.

Stirling calls attention to the triad of symptoms indicative of malignant renal tumor—hematuria, pain, and tumor, named in the order of their frequency.

This triad is found in approximately 50 per cent or so of cases but X-ray and pyelography furnish the best diagnostic evidence.

The prognosis for cure is uncertain, as relapse locally or by metastasis is very common and may occur late.<sup>4</sup>

The mortality of the operation is not more than 10 per cent.

*Case History:* Mrs. R. G., white, age twenty-nine, housewife. Date of examination—September 8, 1928.

Chief Complaint: Nausea, palpitation, a lump in left abdomen.

Past History: Inflammatory rheumatism at age fifteen; lasted for several weeks. Appendectomy about two years ago, and six months later hysterectomy and removal of one ovary.

Tonsillectomy about five years ago. Numerous decayed teeth have been extracted.

**Present Illness:** Has never been very strong since operations, but did not notice mass in abdomen until about two weeks ago. Strength and energy poor; considerably underweight. Menstruation ceased after hysterectomy; previously normal and regular.

**Physical Examination:** The salient features are her undernourished appearance; rapid, forceful heart action with presystolic and systolic apical murmur; a markedly displaced right kidney, and a large lobular mass in the left flank, apparently the left kidney.

**Laboratory Examinations:** Blood and urine negative. Wassermann negative.

**Cystoscopic Examination** by Dr. A. I. Dodson: Bladder mucosa normal throughout. Both ureteral orifices normal in location and appearance. Indigo-carmin, given intravenously, was eliminated in five minutes from the right, in ten minutes from the left kidney. Left ureter catheterized without difficulty; specimen collected, and sent to laboratory for examination. Laboratory reported specimen negative.

Patient was taken to X-ray room and pyelogram was made under the fluoroscope. Pyelogram could be identified with mass felt in left lumbar region. Conclusion: Tumor of left kidney.

Pyelogram, by Dr. J. L. Tabb, showed that the tumor was either hypernephroma, or a tumor of the left kidney.

The case was referred to me by Dr. Garnett Nelson, and was admitted to my service at the Memorial Hospital, in Richmond, where operation was done. A left lumbar (Mayo) incision was made and the kidney was removed and sent intact to the pathological laboratory.

The pathologic report by Dr. Chas. Phillips was as follows:

*"Gross description:* The kidney is distorted by a tumor projecting from the middle of its lateral surface, and forms a mass measuring 13x8½x5½ cm., weighing 380 grams.

*"The surface is irregularly hemorrhagic, more especially that of the tumor mass, which is smooth and lobulated, 7½ cm. in diameter, rising 2½ cm. above the surface of the kidney. The stump of the ureter is indurated. A milky white fluid is expressed from it. On longitudinal section of kidney the greater part of its substance is found to be occupied by tumor*

masses ranging from less than 1 to 9 cm. in diameter, soft, grayish white, and solid.

*"The pelvis is filled with a tumor mass which is continuous with the mass projecting from the lateral surface. The tumor nowhere has broken through the capsule of the kidney. Renal artery and renal vein, excised close to kidney, are filled with tumor tissue.*

*"Microscopic Description:* Tumor masses present a papillary structure of anaplastic columnar epithelium. Desquamation and necrobiotic changes are marked. Renal artery and renal vein are filled with tumor thrombi.

*"Pathologic Diagnosis:* Papillary adenocarcinoma of kidney."

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### SIGNIFICANCE OF LARYNGO-TRACHEAL DYSPNEA.\*

By ELBYRNE G. GILL, M. D., Roanoke, Va.

Dyspnea is a symptom, not a disease, and it is a symptom of many different conditions. The laryngeal form demands prompt recognition so that life saving measures may be instituted.

*Etiology.*—Laryngo-tracheal dyspnea may be caused by many conditions, but only the more frequent ones will be mentioned—edema, thick secretions, influenza, tuberculosis, syphilis, neoplasms and aspirated foreign bodies.

*Symptomatology.*—Restlessness, increasing respiratory rate, stridor, indrawing at the supra-sternal notch and ashy gray pallor are the main symptoms. The appetite is disturbed as the child is too busy getting sufficient air to be interrupted by the taking of food through the mouth.

*Diagnosis.*—When the obstruction is in the larynx or the cervical trachea, the unsatisfied negative pressure caused by the inspiratory expansion of the thoracic bellows causes indrawing of the soft tissues where they are unsupported by bone or cartilage. The locations of this indrawing are: 1. The supra-sternal

\*Read at the meeting of the Southwestern Virginia Medical Society, in Galax, Va., September 16-17, 1929.



notch. 2. The supra-clavicular fossae. 3. Intercostal spaces. 4. The epigastrium. Every practitioner of medicine should be able instantly to recognize obstructive laryngeal dyspnea by the indrawing at the supra-sternal notch. This sign is never present in dyspnea of asthma, pneumonia or other diseases, mediastinal, cardiac or pulmonary, unless laryngeal complications are present. This sign is a danger signal. In addition to this cardinal sign, there are two accompanying signs that are important. One is stridor, and the other is restlessness. The latter means air hunger.

*Prognosis.*—The mortality is high if the condition is unrecognized, but very low if recognized early and a tracheotomy is performed. Deaths have occurred from the mistake of giving sedatives to a restless child when the restlessness was due to air hunger.

*Treatment.*—Tracheotomy is the only safe procedure. It should be performed early. Never wait for cyanosis to develop, as it does not occur until the child is nearly dead—and not always then.

#### CASE REPORTS

*Case 1.*—Age three months; admitted to the hospital March 7, 1929. Was referred by Dr. R. A. Morison. For past six weeks child had been wheezing and had a "croupy" cry on breathing. Enlarged thymus; protein sensitization and foreign body had been suspected.

*Physical Examination:* Lungs clear and resonant. Heart fast but normal. No rales in chest, or dullness. Child had a barrel-shaped chest. There was moderate indrawing at the supra-sternal notch and rather marked at the epigastrium. Appetite was disturbed; the child was steadily losing weight. Restlessness was a pronounced symptom. Temperature on admission was 100.8 degrees, respiration 36; pulse unable to get.

*X-ray of Chest:* Both lungs clear and no evidence of a foreign body.

*Treatment:* This consisted of steam inhalations and change of diet. There was some improvement in the general condition and the breathing was not quite as difficult after a week of this treatment. The patient was discharged March 15, 1929. The parents were advised to continue the same treatment at home. Patient was re-admitted May 29, 1929. Condition was the same, other than that the breathing was more difficult, the chest more barrel-

shaped, and restlessness was more pronounced. At this time tracheotomy was done, which resulted in immediate relief of dyspnea. The general condition has steadily improved. The diagnosis of congenital laryngeal stenosis was made by laryngoscopy. The treatment has consisted of laryngeal dilatations at intervals of three weeks.

*Case 2.*—Patient, age two years, admitted May 20, 1929. Was referred by Dr. J. H. Anderson. Child had not cried aloud since he was four months old. Three weeks before admission, breathing suddenly became very difficult and the family physician, Dr. Anderson, Marytown, West Virginia, placed an intubation tube in the larynx and administered diphtheria antitoxin. The tube was removed but had to be re-introduced. The patient was referred to a pediatrician in Bluefield, and more antitoxin was given. The child was wearing the intubation tube when admitted to the hospital. May 21st, we removed the tube and performed a tracheotomy. Laryngoscopy revealed multiple papillomata of the larynx. The treatment has consisted of excision of the growths at intervals of three weeks.

*Case 3.*—Patient, age nineteen months, admitted July 16, 1929. Was referred by Dr. John Shackelford. One week prior to admission, patient had a severe coughing and choking spell while eating peanuts. Has had a croupy cough and wheezy breathing since aspirating the peanut.

Physical and X-ray examinations indicated a foreign body in left bronchus. Bronchoscopy was done May 17th. The husk of a peanut was removed from left bronchus. Eight hours later, breathing was difficult. There was indrawing at the supra-sternal notch and epigastrium, but no cyanosis. Tracheotomy was done and the dyspnea was immediately relieved.

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It was George Horace Lorimer, the man who wrote the immortal "Letters of a Self-Made Merchant to his Son," who said:

"It's good to have money and the things money can buy, but it's good, too, to check up once in a while and make sure you haven't lost the things money can't buy."

## A MICROSCOPICAL STUDY OF A CAUDAL APPENDAGE OF A FOUR-TEEN MONTHS' OLD CHILD.\*

By  
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and  
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### INTRODUCTION

Knowledge concerning human tails remains meager, and microscopical data are given in the case of only one specimen. References to this type of anomaly were made as far back as Pliny, and travellers to Africa, India and Burma have reported seeing natives with tails. These reports have come, in the majority of the cases, from India. The princes of certain provinces in India were supposed to possess tails as a sign of divine favor as well as showing their descent from the monkey-god, Hanuman. These princes were given the name "Pooncheria" or the "long-tailed races of Saurashtra."

Ninety-three cases of human tails have been reported from Europe, and, according to Harrison, five cases have been reported from the United States up to 1900. On account of the popular interest in this anomaly from an evolutionary standpoint, almost everything appended to the sacral or coccygeal region has been called a tail.

Numbers of these caudal appendages do bear a resemblance to the tail of the lower mammals, but undoubtedly the great majority of these so-called tails are not what they seem. Histological study is obviously the only logical and positive method for determining their true nature. In nearly all cases of reported "tails," other anomalies and deformities have been present at the same time. Some of these on record are hypospadia, atresia ani, spina bifida and ectopia viscerum. Sacro-coccygeal tumors of various kinds have also been found in connection with these reported tails. Many of the above are said to result from amniotic adhesions, and such opinion led Schaeffer (1892) to conclude that tails were also the result of amniotic adhesions. However, in the case we have to report, the origin differs from that assumed by Schaeffer.

Bartels (1884) has collected a voluminous body of data on the subject of human tails and classifies them as *soft* and *adherent* tails. He also gives a map showing the geographical

distribution which includes the countries of England, France, Turkey, Persia, India, Borneo, Sumatra, Burma, Japan and New Guinea. He reports none from North America, but two hearsay cases from South America. Virchow (1884) published an account of several "soft" tails, with pictures brought back to him by a friend from India. Kohlbrugge (1898) gives the most complete account of any of his contemporaries.

Harrison, Myers, Berry and Dickinson are some of the American workers who have contributed to the literature on human tails. Harrison (1901) is the only one who has given a comprehensive account, and he alone undertook a histological study of a caudal append-

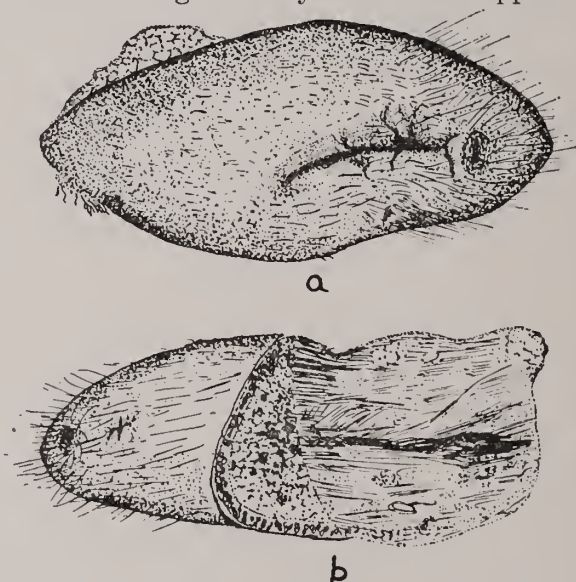


Fig. 1. a.—Dorsal view of the caudal appendage, showing groove and pit (natural size).  
b.—Ventral view of the appendage (natural size).

age. More recent reports have been made by Konstantiowitz (1907) and Schwartz (1912.)

Proper distinction between the tails of the lower mammals and those described for man is essential. The mammalian tail consists of an axis of vertebrae with the attached muscles, the blood vessels, nerves, connective tissue and the skin with its appendages. The muscles are voluntary and there are both sensory and motor nerves. The skin is the usual type with sebaceous glands, sweat glands and hairs. In the human tails which have been reported in the United States no vertebrae have been described and there is much doubt if any vertebrae, as such, have ever been observed in a human tail. Cartilages have been found but these could not be held to be vertebrae. In

\*From the Laboratory of Histology and Embryology, University of Virginia.



those that have been found to contain cartilage there is no increase over the usual number of thirty-four vertebrae. In one case of a human caudal appendage voluntary muscle was found (Harrison), but this was not so arranged as to permit control over the organ. In the majority of the reported cases the so-called tail was merely a sac of adipose tissue or a tiny fold of skin overlying a bit of cartilage. In many cases the appendage could not be legitimately classified as a tail.

#### THE DEVELOPMENT AND REDUCTION OF THE EMBRYONIC HUMAN TAIL

Ecker and His were the first to give detailed descriptions of the caudal region of the human embryo. They came to the conclusion that the term "tail" could properly be applied only to that portion of the human embryo that extends beyond the cloaca.

The human tail reaches its highest development when the embryo is between the 7 mm. and the 16 mm. stage. It consists of a portion containing vertebrae and a portion free of vertebrae; only the non-vertebrated portion atrophies. The vertebrated portion disappears in consequence of the curvature of the sacrum and the coccyx. It contains the caudal ends of the spinal cord, notochord and the middle sacral artery and vein. The longest embryonic tail found by Kunitomo (1918) was 1.2 mm. in length on an embryo of 7.5 mm. The human embryo of 14 mm. has the best developed tail, although even at this stage there is no caudal filament as found in the tails of the lower mammals. The reduction of the tail begins by the time the embryo has reached 8 or 9 mm., and by the time it has reached 27 mm. the only part of the tail to be seen is a small papilla. The vertebrated portion has retreated and only the soft part is left. This also finally disappears in the normal individual. Kunitomo holds that the tail-like appendages which appear in adults may be explained as persistent caudal tubercles or papillae (Fig. 6, B. med. c. ves.) which have failed to atrophy in the normal manner. The tail entirely disappears between 27 mm. and 35 mm.

The caudal gut disappears at the 6.5 mm. stage, but the medullary tube extends to the extreme tip of the tail. At the 15.5 mm. stage the medullary tube can be divided into two parts at the level of the thirty-second vertebra; a cranial portion with a wide canal,

and a caudal portion which is atrophic and has a very narrow lumen. We believe that this latter part played an important role in our case. The atrophic portion gradually becomes more slender, although sometimes the extreme caudal portion remains stationary or becomes enlarged. The atrophic portion subdivides, the caudal element becoming the medullary coccygeal vestige, and the cephalic element the filum terminale. The medullary coccygeal vestige can be clearly seen in the 23 mm. embryo and can be traced through the 52 mm. stage (Fig. 6, B).



Fig. 2.—Typical view of axial core of caudal appendage, showing characteristic relation between connective tissue trabeculae and neuroglia (X).

In embryos of 12 to 14 mm. there are 33 spinal ganglia; this number is reduced to 29 by the 67 mm. stage. Four ganglia disappear; no nerves can be traced to these.

#### CLINICAL HISTORY.

The patient, a well developed and well nourished white female child, fourteen months of age, was brought by her parents to the Cora Donnell Hospital, Prescott, Arkansas, June 7, 1929, because of a growth in the caudal region. There is no other instance of congenital deformity in the family, as far as the parents know. The child was born at term and the intra-uterine period was passed by the mother with no unusual features. The post-natal condition was good, there being no cyanosis or failure to nurse. The birth weight was estimated at eight pounds. The infant was breast fed. Growth and development have been apparently normal.

At birth it was noticed that the child had a "tail." This fact upset the parents a great deal and they felt ashamed to consult a physician with the idea of having it removed. However, they decided that

something should be done before the child grew older, so they brought the child into the hospital for treatment. The tail has grown proportionately with the individual, but at no time has it caused any inconvenience except that the baby cried when the tail was handled and seemed to prefer not having it touched at all. The child would not move any part of the body except the hands when told to do so. It would kick its legs about and the tail would move, although it was impossible to say whether there was any voluntary movement or not.

Mental development was apparently average. The fontanelles were closed and there was no evidence of hare-lip or cleft palate. The tonsils were small and buried. There were no abnormalities about the teeth. The heart and lungs were normal. The chest showed no signs of rickets or other abnormality. The liver was palpated; there were no masses. External examination showed no abnormalities about the genitalia. The extremities and the skin were perfectly normal. At the time of the examination, June 7, the child weighed 24 lbs. and 10 ounces.

The laboratory findings showed: Hemoglobin—85% (Tal.), RBC—4,400,000, WBC—8,600. Differential white count; lymphocytes—54%; Polymorphonuclears—41%, large mononuclears—4%, eosinophils—1%, basophils—0%, transitionals—0%. Smears showed no change in the size or the staining properties of the red blood corpuscles. There were no malarial plasmodia and the platelets were apparently normal.

The anesthetic used was drop ether. Symmetrical incisions were made, one on either side of the appendage, joining superiorly and extending around to unite just posterior to the anus. The appendage was resected. The patient recovered from the operation in good condition and the parents have not been seen since.

#### GROSS DESCRIPTION OF THE TAIL

This sacro-coccygeal appendage is 7 cm. long, 2 cm. thick and tapers to a width of 2 cm. at the free extremity (Fig. 1, a and b). It is more or less rounded and covered with thick skin. There is a pocket in the extreme caudal end which may possibly correspond to the foveola coccygea. About 1 cm. anterior to this terminal pit there is another of the same general character, and there is a third small pit on the ventral surface. All of these depressions are lined with normal, moderately thick skin. About 3 cm. from the tip and on the dorsum of the structure there is a groove or fold. It is about 1.5 cm. in depth and about 3 cm. long and it is also lined with moderately thick skin. Other authors have noted such grooves. This leads us to think that we may be dealing with the same thing. We believe that these grooves arise as the result of regressive changes in the connective tissue.

#### HISTOLOGY OF THE TAIL

The material was fixed in 10 per cent formalin. Portions were cut from the tail at representative places so as to give a complete histological section through the tail, and to give

the structure of the pits and groove. Celloidin sections were stained with hematoxylin and eosin, Weigert's elastic tissue stain and with Mallory's phosphotungstic acid-hematoxylin. Considering the fact that the tissue was fixed in formalin alone, the results with the last named stain were very satisfactory in differentiating neuroglia fibers. The glia cells stained well in any of the above mentioned stains.

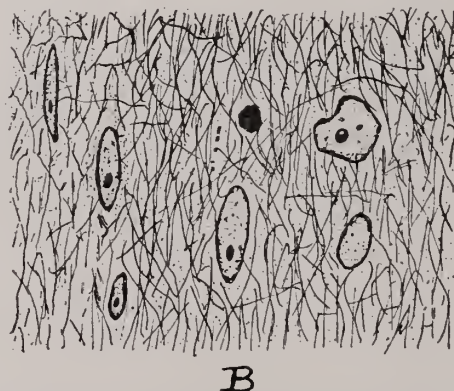


Fig. 3. A.—More highly magnified view of neuroglia. Hematoxylin and eosin stain. Magnification  $\times 1000$ . B.—View of similar area stained with Mallory's phosphotungstic acid-hematoxylin.  $\times 1000$ .

The epidermis, derma and subcutaneous tissue are normal with well developed hairs, sebaceous glands and underlying connective tissue. The skin is underlaid by a stratum of adipose tissue with many small arteries and veins. Beneath this adipose tissue occurs dense areolar tissue from which many trabeculae penetrate toward the surface of the structure.

The axial bulk of the appendage consists of neuroglia tissue. Many glia fibers and glia cells compose dense, thick cords (Fig. 3) intermingling everywhere with the connective



tissue and apparently encroaching upon it very rapidly. The cells of the neuroglia are associated with fibers which stain sharply with Mallory's stain. These cells are irregular in shape and vary from ovoid to stellate and fusiform (Figs. 3, 4.) These cells have very little cytoplasm. In our specimen the neuroglia tis-

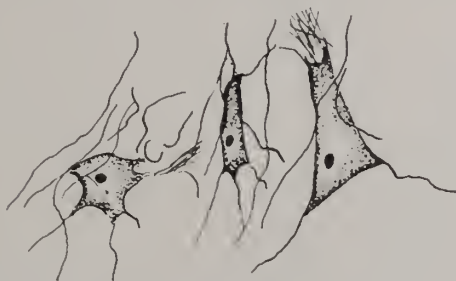


Fig. 4.—Typical neuroglia cells. There is a dense background of neuroglia fibers, not shown. x 1000.

sue has apparently grown proportionately with the growth of the child.

This fact accounts for the great number of neuroglia fibers as well as cells. We find numerous neuroglia cells in various stages of atrophy and calcification (Fig. 7, c, d, e, f, g, h). This shows that the neuroglia tissue has begun to involute, a characteristic of gliomas.

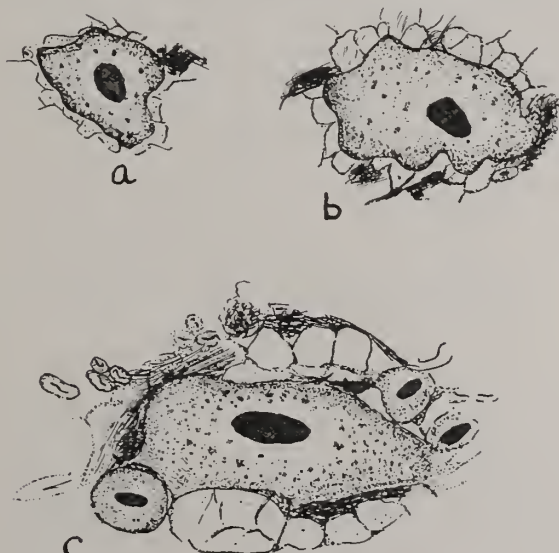


Fig. 5, a, b, c.—Degenerating neurocytes, probably the remains of a ganglion. Hematoxylin and eosin. x 1000.

This process of calcification begins by a slight enlargement of the cell. Subsequently the cytoplasm appears to fracture concentrically; at the same time the nucleus degenerates. The cell enlarges further and the nucleus finally mains of the neural tube offer exceptional possibilities for the production of gliomas, since very often the atrophy of the coccygeal vestige is incomplete. These persistent cells have the inherent capability of producing neuroglia tissue and occasionally give rise to gliomas over the coccyx and in the nose.

structure with a relatively clear space in the center. These cells suggest the "brain sand" of the involuting epiphysis cerebri (pineal body).

Gliomas occur only in the central nervous system and its outgrowths. The vestigial remains of the neural tube offer exceptional possibilities for the production of gliomas, since very often the atrophy of the coccygeal vestige is incomplete. These persistent cells have the inherent capability of producing neuroglia tissue and occasionally give rise to gliomas over the coccyx and in the nose.

We are unable to say at this time whether this glioma will reappear or not. Although gliomas show a tendency to infiltrate the connective tissue they do not attack the blood vessels. So far as is known no case of glioma of the brain has given rise to metastases outside of the central nervous system. On the other hand a woman of forty-two, having a glioma over the coccyx, showed a recurrence which produced metastasis in the groin glands (Mallory).

The glioma under discussion was as hard as a dense fibroma and was pearly grey in color. This corresponds exactly to the records of other sacro-coccygeal gliomas. Mallory says, "various retrograde changes may occur in gliomas—necrotic tissue may, instead of undergoing softening, become calcified." This agrees with our observations.

We conclude that this appendage, which had the external features of a human tail, according to the classification of Bartels, Virchow and others, is no more than a coccygeal glioma. The finding of partially atrophied ganglion cells (Fig. 5, a, b, c,) as well as the fact that neuroglia must be derived from the central nervous system, presents strong evidence that we are dealing with a remnant of the neural tube, the medullary coccygeal vestige. This case is interesting because it proves that the medullary coccygeal vestige can give rise to a tumorous growth. It furthermore shows the necessity for the minute study of such anomalies.

#### SUMMARY

1. This caudal appendage comes under the classification of Bartels as a "free" tail and under that of Virchow as a "soft" tail. It does not agree histologically with the only other tail which has been given careful attention from the standpoint of microscopical analysis. It contains an irregular axial core of neuroglia.

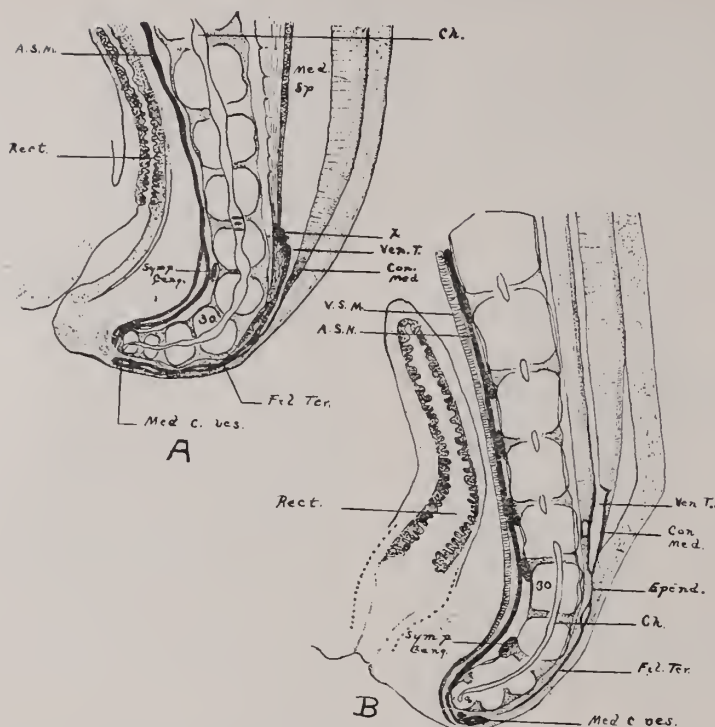


Fig. 6. A.—Median longitudinal section of a 37 mm. human embryo (after Kunitomo). A. S. M. median sacral artery; ch. notochord; con. med. conus medullaris; Fil. t. filum terminale; symp. gang. sympathetic ganglion; med. sp. medulla spinalis; Rect. rectum; V. S. M. median sacral vein, vent. t. ventriculus terminalis; X characteristic fold in the wall of the spinal cord.

"The specimen shows the transition of the atrophic spinal cord into a fibrous filum terminale. The terminal portion retains its lumen and persists as the coccygeal medullary vestige." This vestige may become the source of a glioma as in our specimen.

B.—Median longitudinal section of a 52 mm. human embryo. Labels as in A. "At this time the terminal ventricle, filum terminale and the coccygeal medullary vestige are distinctly marked off from each other and their general adult characteristics attained." (Kunitomo).

2. The neuroglia tissue must of necessity have been of epiblastic origin. It signifies the persistence of the medullary coccygeal vestige in post-embryonic life. It demonstrates that this vestige may give rise to a neoplasm.

3. The occurrence of a few partially atrophied ganglion cells further supports the conclusion that this is a persistent medullary coccygeal vestige. The appendage corresponds to Mallory's description of a sacro-coccygeal glioma.

4. We advance the theory that the calcified neuroglia cells may correspond to the "brain sand" of the involuting pineal body.

5. The report of this appendage shows the necessity of making minute studies of such anomalies.

The authors desire to express their appreciation for the help extended to them by Dr.

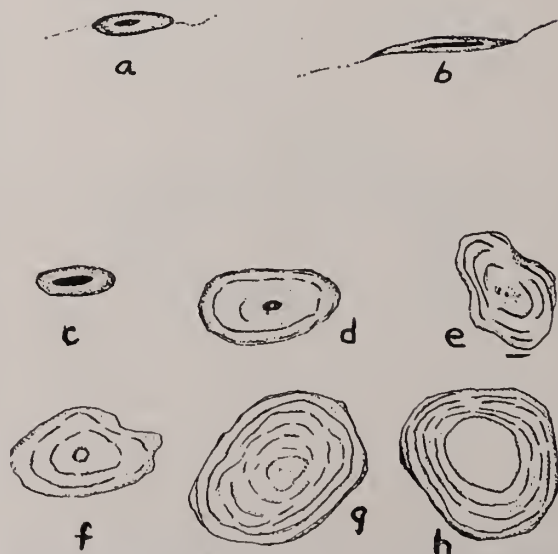


Fig. 7. a, b.—Neuroglia cells. c, d, e, f, g, h, successive stages in the transition from the typical glioma cell to the atrophic calcified lamellar type. Hematoxylin and eosin.  $\times 1000$ .



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### IONIZATION IN THE TREATMENT OF SKIN DISEASES—PRELIMINARY REPORT.\*

By RUSSELL FIELDS, M. D., Washington, D. C.

Ionization is a subject which should be of particular interest to the dermatologist. It offers a means of introducing medicaments into the skin with greater penetration than can be attained by ointments. Much has been written on the subject, with varying claims as to its efficacy. The purpose of this article is to record the results obtained in the University and Bellevue Clinic during the past six months.

Ionization is based on the theory that all elements can be broken into their respective atoms. Many of these atoms can further be subdivided into ions. All ions carry a positive

or negative electrical charge. Not only ions, but groups of elements (molecules) may carry an electrical charge. By using a direct (galvanic) current, ions may be made to flow from one pole to the other, a fact which is clinically utilized in the application of ionization. Both cataphoresis and anaphoresis are included under the term ionization.

The apparatus used consisted of a motor transformer operating on a direct current of one hundred and ten volts. If only alternating current is available, a motor generator must be used. The current produced was between forty and fifty volts and one to ten milliamperes. A milliammeter and finely adjusted rheostat were also in the circuit. Sheet lead was used as the inactive pole covered by cotton and gauze saturated with physiologic saline solution. The active pole was made of copper covered with gauze soaked in the particular medicament to be used. The positive or negative pole was connected with the active or inactive electrode depending upon the charge of the ion introduced. Leduc<sup>1</sup> found that between one and two per cent solutions were the most effective, stronger concentrations not being necessary. He also determined the depth of penetration and the quantity introduced in a given time. In my work three solutions have been used: one-quarter of one per cent iodine (Lugol), one per cent oxycyanide of mercury and one per cent solution of zinc sulphate.

The active pole is applied to the area which is treated, and the inactive pole is placed in a convenient nearby position. For example, in treating pruritus vulvae and ani the inactive pole may be placed over the lower abdomen or the lumbar region. The inactive pole should be six to eight times larger than the active one. The current is increased gradually until a burning sensation is produced. This is usually reached between seven and ten milliamperes. It is claimed, however, by the manufacturers of the latest forms of apparatus producing galvanic current that fifty milliamperes may be used without producing discomfort. What effect such a high milliamperage would have on more complete ionization of the atoms I do not know. With a high milliamperage the time of application may be shortened.

There is a possibility that the results of ionization may be partly due to the current at the poles and not entirely to the medicament introduced. It is well known that the positive

\*From the Department of Dermatology and Syphilology, University and Bellevue Hospital Medical College, Clinic of Dr. Howard Fox.

pole liberates oxygen, produces an alkaline reaction, stops bleeding, hardens tissue and acts as a vasoconstrictor. The negative pole, on the other hand, liberates hydrogen, produces an acid reaction, increases bleeding (being a vasodilator), liquefies and disintegrates tissue and softens cicatrices. These effects of the current alone are an aid in the treatment of certain skin conditions. Furthermore, the secondary reactions which take place between the ions set free at the poles and the material of the pole may have some effect. Lewis explains this action very well in his work on ionic medication.

My work has been confined principally to dermatologic affections which it seemed might be benefited by the introduction of a germicidal or a stimulating remedy. I have taken into consideration the physiological effects of the current of the poles, but have not relied on this alone.

Nine different skin diseases were treated. In this small series of cases one hundred and eighty treatments were given from fifteen to twenty minutes each.

The most encouraging results were obtained in pruritus vulvae, in which 62.5 per cent of the patients were entirely relieved of itching.

In pruritus ani 40 per cent were very much improved, 30 per cent moderately, and 10 per cent slightly improved.

Improvement was noted in one case of neurotic excoriations, one case of intertrigo and one case of chloasma. There was no result in one case of eczema of the scrotum and one case of lupus vulgaris, although the latter disease has been successfully treated by Whitfield by ionization.

The following few cases are illustrative of some of the results obtained:

*Case I.—Pruritus Vulvae:* Mrs. G. W., age 35, duration 4 years, first treated in 1926 with X-ray. Four  $\frac{1}{4}$  H. relieved her. She has been quite well until five months ago. Ionization 16 minutes, 1 per cent iodine (Lugol), 10 MA at four-day intervals four times. Five months later, no recurrence.

*Case II.—Pruritus Vulvae:* Mrs. W., age 60, 10 years' duration, X-ray—thirteen and one-quarter units. No relief. Ionization 5 MA, 1 per cent iodine (Lugol), 15 minutes, five treatments, sedative at bedtime. No recurrence five months.

*Case III.—Pruritus Ani:* Mrs. G. C., age

49, duration 2 years, mild acute dermatitis around anus. Intense itching. Lugol's 1 per cent, 10 MA, 15 minutes, six treatments. No recurrence six months.

*Case IV.—Alopecia Totalis:* Miss L., age 25. Four years ago her hair fell out for the first time. It showed no signs of returning for one year. The second time it fell out was in January, 1927. Fell out gradually for nine months, and then suddenly stopped falling. It started to fall out January 1, 1929, and all fell out in three or four weeks. When treatment was started, she was completely bald. Zinc sulphate, ionization 1 per cent solution, 15 minutes, 2 areas, 10 MA twice a week, seemed to stir the growth up immediately. Five months later finds the hair growing in well.

In treatment of pruritus ani and vulvae, a one per cent solution of iodine (Lugol) was used, reducing the strength at times to one-quarter of one per cent. In cases of pruritus associated with an acute dermatitis, a lesser concentration was used and weaker current applied (usually from two to five milliamperes). In cases with lichenification or in pruritus with no demonstrable lesions, the usual one per cent solution of iodine (Lugol) was used with eight to ten milliamperes of current. Dermatophytosis was treated successfully in four cases. The introduction of novocain by ionization to produce local anaesthesia was tried without results. On the other hand this was successful when one per cent cocaine hydrochloride was used.

In the management of cases treated by ionization, full cooperation of the patient is essential, and sometimes a mild bromide or amylal at bedtime is found to be helpful. Treatments in pruritic affections may be given twice a week or even daily, depending on the amount of itching, and should be continued a few weeks after all symptoms have disappeared. Results were obtained frequently where X-ray had failed. The combination of phototherapy (mercury-vapor-arc lamp) and ionization produced results in one case where other measures failed.

My results are similar to those of Oliver,<sup>2</sup> who found that in 30 cases of pruritus ani, 23 per cent were cured, 35 per cent much improved, with no improvement in 20 per cent. Buie<sup>3</sup> reported that 72 per cent of his patients obtained "sufficient relief to repay them for the time spent in taking the treatments." Rolfe<sup>4</sup>



reported marked improvement in 12 of his 30 cases. Montague<sup>5</sup> who has had a wide experience in this work believes that the treatment attains the desired results when properly carried out at regular intervals.

From my limited experience it would appear that in the treatment of *pruritus vulvae et ani* (and possibly dermatophytosis) ionization is a method of value.

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#### MALARIA.\*

By LEWIS C. LUSH, M. D., Richmond, Va.

Malaria is a protozoan disease which affects man and certain species of anopheles mosquitoes. It is characterized in man by paroxysms of intermittent fever in the acute stage, and by cachexia, anemia and enlargement of the spleen in the chronic stage.

Malaria is generally prevalent in the tropics, except in arid areas, and is endemic in many parts of the temperate zone during the warm season. It is endemic in the Southern States and in Southern Europe. Its distribution in the temperate zone is, however, gradually being reduced, and its seriousness in the tropics lessened. At one time malaria was prevalent as far north as the New England States, but now it is rather rare north of Virginia and rarely reaches serious proportions in the states further south.

The causative organism in malaria is a plasmodium, which is a protozoan parasite. *Plasmodium falciparum* is the causative organism in estivo-autumnal fever, *P. vivax* in tertian, and *P. malariae* in quartan fever.

The organism was first discovered in 1880 by Laveran, a French army surgeon, and thought to be the cause of malaria. In 1885

Golgi observed that the paroxysms of fever invariably coincided with the sporulation or segmentation of groups of the parasites in the blood. He also discovered a difference between the organisms in tertian and quartan fevers. In 1889 Marchafava and Celli found that the parasite of the severer form of malaria, namely, estivo-autumnal, was still a different parasite.

The relation of malaria to insects was suggested by the old Romans, and revived by John Crawford, of Baltimore, in 1807. The belief that fever was transmitted by the bite of the mosquito prevailed widely in the West Indies and the Southern States. But it remained for Manson, who was influenced by the work of Theobald Smith in demonstrating the role played by the tick in Texas cattle fever, to formulate a clear and scientific theory of infection in malaria by the mosquito. Ross, in India, showed that the parasites developed in the bodies of mosquitoes, and demonstrated that the infection in birds was transmitted by mosquitoes. Then the role of the mosquito was definitely proven by Manson in his experiments where the disease was transferred to man by the bite of the mosquito, and by the results of the anti-malarial campaigns where the people were protected from mosquito bites.

There are two separate stages in the life history of the plasmodium, a sexual and an asexual stage. The latter takes place in man who acts as the intermediate host and in whom in this cycle of its development it causes the symptoms of malaria. In the sexual stage the parasite lives and develops in the intestinal tract of females of certain species of the anopheles mosquito.

In the asexual cycle the organism enters the blood from the bite of a mosquito and enters a red blood cell where it grows until it has reached its full size. It is an amoeboid body which fills or distends the corpuscle when fully developed. At this time it divides into a number of small hyaline bodies, known as merozoites, and the corpuscle ruptures, freeing them into the blood stream from where they in turn enter corpuscles and repeat the cycle. This cycle takes from twenty-four to forty-eight hours in estivo-autumnal malaria, forty-eight hours in tertian, and seventy-two hours in quartan. The paroxysms of fever are due to the toxins liberated, when great numbers of corpuscles rupture, liberating the merozoites and their waste products of metabolism.

\*Read before the Manchester Medical Society on March 5, 1929.

Beside the amoeboid bodies which pass through the asexual cycle, there are present with them some individuals with sexual properties which are gametocytes, male and female. These are slower growing and do not sporulate. When these forms are ingested by the mosquito, the female gametocyte is fertilized by the male and forms a zygote which penetrates and becomes encysted on the intestinal wall of the mosquito. After about two weeks this cyst ruptures, liberating many sporozoites which migrate to the salivary glands of the mosquito and are ready to be injected into man to start the asexual cycle over again.

When a mosquito is infected, it is probably infected for life. That is the few that have been kept under observation have been found to be. One was found to be infectious for ninety days, when it died. Most mosquitoes die or are destroyed before they are two weeks old.

As you will note, the plasmodium causes a pathological condition in the mosquito as well as in man. Dr. Alessandrini, of Rome, believes that mosquitoes have a certain resistance to malaria which varies with their nutrition in the larval stage. He says in part: "Malaria in its extension and severity is in inverse relation to the organic resistance acquired by the anopheles during its larval state."

Here in Virginia tertian malaria is the most prevalent, probably being about 60 per cent of the malaria. Estivo-autumnal accounts for practically 40 per cent. The quartan is negligible. In the tropics estivo-autumnal is the most prevalent accounting for approximately 69 per cent of the cases on the Canal Zone. Quartan accounts for less than 1 per cent, leaving only about 30 per cent due to tertian organisms.

The incubation period of malaria, from the time a person is bitten until the first paroxysm, varies with the person's natural resistance, his physical condition and the number of the infecting organisms delivered by the mosquito. It is usually about ten days, varying from one and one-half to fifteen days or more.

In typical malaria the paroxysms come every forty-eight hours in tertian, every seventy-two hours in quartan, and in from twenty-four to forty-eight hours in estivo-autumnal malaria. As the disease continues untreated, the paroxysms are apt to become longer and lose their regularity. Also in mixed and multiple in-

fections the paroxysms are apt to lose their periodicity.

In typical malaria the patient generally knows when he is going to have a chill by the preceding unpleasant feeling. The typical paroxysm itself is divided into three stages—the cold, the hot, and the sweating stage.

In the cold state the temperature begins to rise and may reach 105° or 106°, but the skin is cold. The patient looks and feels cold; he shivers and shakes the bed. His teeth chatter. He has headache. The pulse is quick and small. There is an increase in the urinary output, and there may be nausea and vomiting. After from ten minutes to an hour or more the patient has flushes of heat. The skin becomes florid and hot. The pulse becomes full and bounding. The headache continues and throbs, and there may be delirium. After from one-half to three-quarters of an hour of this, the patient begins to sweat. The sweating may be only slight or very profuse and drenching. In this stage the patient's discomfort disappears, the headache is relieved, and the patient usually sinks into a refreshing sleep.

In between the paroxysms the patient may feel normal except for some weakness. As a rule the quartan paroxysms are milder than the tertian, and the estivo-autumnal paroxysms more irregular, with a longer febrile stage. As a rule, estivo-autumnal malaria is the most severe form as the paroxysms come oftener and last longer, thereby giving the patient less time in which to recuperate and raise his resistance.

In the atypical case of malaria one may find most any symptom. One may find the organisms in the blood of a person who is enjoying good health and presenting no symptoms or signs of the disease other than the parasites. Then the patient may show only slight weakness and malaise with no fever. Or he may show a continued high fever with only slight remissions.

Osler describes an algid form of malaria, in which the symptoms are chiefly gastro-intestinal in form, with nausea, vomiting and diarrhea. There may be a continued high fever, or none, with the patient feeling chilly occasionally. In this form the urine is scant, due to the diarrhea and vomiting, and the pulse is feeble. The G. I. tract in this form is the seat of a special invasion of the parasites, and



at times the capillaries are thrombosed by them giving small ulcers and necrotic areas. Death is not infrequent.

In the cerebral form we have the symptoms of cerebral irritation, hyperactive reflexes, irritability, delirium, and coma; or, there may be transient paraplegia, peripheral neuritis and acute ataxia. In the cerebral form the temperature is usually high. The symptoms and signs are due to three things—the fever, toxins, and thrombosis of the cerebral capillaries, by masses of parasites. Death in this form is also not infrequent.

Then we come to another condition, classed by American writers as a form of malaria, namely, black water fever, or hemoglobinuric fever. This condition is characterized by paroxysms of hemoglobinuria, accompanied by rises in temperature. The color of the urine varies from a red tinge to black, and the blood serum from pink to brown. There may be suppression of urine, and the patient may die of uremic symptoms or from cardiac exhaustion. The death rate in this condition is high, ranging above 20 per cent. There are many reasons for believing black water fever to be due to malaria, among them, the distribution. It is always found only where malaria is found, it has a seasonal incidence, the peak following the peak in malaria, and the racial susceptibility, like malaria, is highest in the whites and lowest in the blacks. But proof that malaria is the real cause is lacking, in that the organisms of malaria have been found in only about 50 per cent of the cases that have been studied. The Americans believe that the cause is malaria plus and individual susceptibility. The role played by quinine is questionable, since people have black water fever who have never taken quinine. The Latins believe that there is some other factor in the cause of black water, probably an unknown infection. Whitmore has recently demonstrated what he believes to be a family susceptibility. Whether his findings are due to a susceptibility or to an infection, as suspected by the Latins, remains to be proven.

The course of malaria varies with the individual patient. There may never be any symptoms, or the disease may become malignant and go on to a speedy death. Some cases peter out after from ten to fourteen days and get well even without treatment. The case may get apparently well, and then relapse. This

relapse may be at any time within a year or more, usually coming on when for some reason the patient's resistance is low. There is a tendency for the disease to go on to chronicity, if untreated, causing anemia, and in many cases hematogenous jaundice, and an enlarged spleen.

*Diagnosis:* The only sure diagnosis is to find the organisms in the blood. In the acute stage, this is usually easy, just preceding the paroxysms. But in the chronic and atypical cases, resort often has to be made to repeated thick smears to find the organisms. In the typical case, a fairly reliable diagnosis can be made from the history. Reliance on the enlarged spleen is of little value even in heavily infected areas, as only a small percentage of the malarias give a palpable spleen. And, too, there are so many other conditions that cause enlargement of the spleen.

*Malarial Control:* Any program for malarial control must be directed towards mosquito destruction and the care of human carrier. The first is a public health or sanitary problem, consisting in the draining of breeding places where practical, and the use of larvicides, such as oil and paris green sprayed on the breeding places that cannot be drained. What can be accomplished by sanitation has been admirably demonstrated in our Canal Zone, which was known as the white man's grave before the advent of the Americans. Now it has a death rate lower than Continental U. S. The malaria rate in the Canal Zone in 1906 was 821 per 1,000 employees. In 1926 it was 16. Deaths from all causes were 50 per 1,000 in 1906, and 8.5 in 1926, being only 3.3 per 1,000 among the white American employees.

Now, coming to the handling of the malarial patient, they should be protected by screens from mosquitoes which they might infect. In the acute stage patients should be put to bed and kept there as long as febrile. They should be given a laxative and put on a light nutritious diet. During the chill they should be covered with blankets and hot water bottles applied. In the hot period following the chill, an ice-cap is indicated as in any other high fever.

*Medication:* Quinine, the value of which the South American Indians discovered and passed on to the Spanish, who in turn passed it on to the rest of the world, is listed as one of our few specific drugs. But, unfortunately, it is

not 100 per cent perfect. We know that cases will relapse after weeks of intense treatment, and that gamites can also be found after weeks of treatment, and cases have been known to succumb to malaria while on a prophylactic dosage of 10 grains of quinine per day. Quinine, while being specific against the ring forms of the parasite in the blood, seems to favor and hasten the formation of gamites against which it has little effect. While not being perfect, quinine still remains our best remedy in the febrile stage of malaria. It should be given in an effective dosage. The Canal Zone routine dosage, based on the observations on an active service for more than twenty years, is 20 grains by mouth on diagnosis, and 10 grains three times daily until afebrile—then, from 20 grains to 5 grains per day for six weeks after they have become afebrile. This quinine is given in solution. Here in Virginia, with our usually mild malaria, such large dosage over such an extended time may not be necessary. But we must remember that when a malarial patient is afebrile, he is not necessarily well. He may relapse or his blood may be full of gamites, making him a dangerous carrier.

Quinine should be given orally whenever it is tolerated, but, as it often happens, the patient is vomiting and will retain nothing in the stomach. Then the intra-muscular method of administration should be resorted to, from 15 to 20 grains of the dihydrochloride being given in from 3 to 5 c.c. of sterile water. This should be repeated in 10 grain doses from two to three times a day until the drug is tolerated by mouth. More than three doses intramuscularly is rarely needed. Aseptic precautions should be observed as quinine is itself an irritant and is prone to cause abscess formation. Massage over the site of injection will hasten absorption.

Quinine intravenously is rarely indicated. It is only justified in malignant cases of algid or cerebral malaria where a few minutes saved may decide the course of the disease. When given, from 5 to 15 grains in at least 300 c.c. of sterile saline solution should be given slowly. There are too many cases on record where the patient has died in from ten to twenty minutes after receiving quinine intravenously to give it indiscriminately. The intravenous method will get quicker results due to the greater concentration of quinine in the blood. The dan-

ger of this method also lies in this greater concentration. When a patient is already weak, toxic, and desperately ill, the depressant action of a large concentration of quinine may, and often does, prove to be the last straw.

Contra-indications for the use of quinine in malaria are few, if any, excepting an individual intolerance for the drug. Some patients do not tolerate it even in small doses, getting up the toxic symptoms of headache, dizziness, ringing in the ears, emesis and, at times, coma.

Within the last few years the Germans have put out a new synthetic drug, plasmochin, which is proving to be a valuable remedy in the control of malaria. The Medical Department of the United Fruit Company, which has had practically a monopoly on the plasmochin sent to America, has carried on a rather extensive research in the use of this drug for the last three years. Others have made some observations on the use of this drug, but on a much smaller scale. They have found that the drug is effective against the tertian ring forms in the blood, but not against the estivo-autumnal ring forms. Its greatest usefulness, however, consists in its seeming specificity against gamites, both estivo-autumnal and tertian, against which quinine has so little effect. They find that the blood is usually free of gamites in from six to eight days of treatment with plasmochin. An intensive course of quinine will usually clear the blood of ring forms in from six to eight days, and they find that, by combining plasmochin and quinine, the blood can be cleared of both forms of the parasite in from six to eight days in practically all of the cases, thus doing away with the necessity of giving quinine over an indefinite time, and reducing the danger of turning loose symptom free carriers. Plasmochin is put up in two forms, plain tablets containing  $\frac{1}{3}$  grain plasmochin, and plasmochin compound tablets containing  $\frac{1}{6}$  grain plasmochin and 2 grains of quinine. It is given to adults in  $\frac{1}{3}$  grain doses three times daily for from six to ten days. The greatest drawback to this drug is its toxicity. Toxic symptoms are prone to occur if its use is persisted in longer than ten days, often sooner. The use of quinine with it seems to reduce its toxicity. The toxic symptoms are prostration, jaundice, and cyanosis. This is not a true cyanosis but a discoloration of the blood serum due to cell destruction. Plasmochin should be used only



when the patient is under medical supervision.

Besides quinine and plasmochin, cardiac stimulants may be needed in severe cases of malaria, and most patients will be benefited by a good tonic after a spell of malaria.

#### SUMMARY

Malaria is due to three forms of a protozoan parasite which are dependent on two hosts for their existence, man and certain species of anopheles mosquitoes.

To get rid of malaria, we have but to get rid of either mosquitoes or to cure all cases of malaria. Mosquito destruction is a sanitary problem and should be persisted in for comfort as well as health.

The cure of the malarial patient is a medical problem. We now have two useful drugs for treating malaria—quinine, which will destroy the ring forms of the parasite that cause the fever and plasmochin which will destroy the gametes which cause relapses and which infect mosquitoes.

3115 Hull Street.

#### AN OINTMENT SYRINGE.

By J. B. H. WARING, M. D., Cincinnati, Ohio.

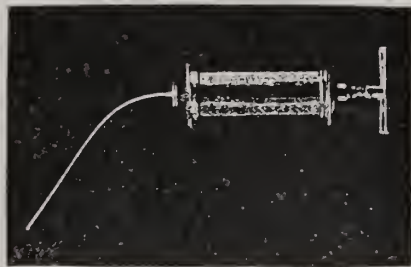
"Necessity is the mother of Invention" is a time worn phrase; but often the word "desirability" may be substituted for the more positive term "Necessity."

In a good many cases, where it was desired to apply an ointment to the upper portion of the nasal cavities, it was a difficult thing to do with the ordinary swab loaded with ointment. Usually most of this was wiped off on the septum or turbinal bodies in the upward passage of the swab or applicator; so that little if any ointment ever reached its desired destination.

Primarily to remedy this deficiency in our armamentarium, the below illustrated ointment syringe was devised. Borrowing from our friends of the garage, the commonly used "grease gun" for automobile lubrication was appropriated as a basis; and with the substitution of a threaded receiving nozzle for the ordinary grease gun connection, plus a small, fine calibered, flexible silver canula with bulbous tip, our outfit was complete. So great is the force required to squeeze ointment through such a fine long tube, that manual manipulation of the grease syringe was out of

the question; hence, resort to screw mechanics to develop the necessary power.

Where used for intra-nasal application of ointment, the ointment syringe is filled with the desired ointment, and with the aid of head mirror and a self-retaining nasal speculum, the tip of syringe canula is carried under direct inspection to whatever portion of the nose desired; and with the syringe steadied in position with one hand, a few turns of the piston handle forces ointment out in a steady fine stream to the desired amount. Reverse turning of the piston handle stops the flow.



Ointment syringe.

In this way ointment may be applied with ease and efficiency to any desired portion of the nasal cavities; and if desired, through the natural openings, into antrums, sphenoids, etc. Ointment for this use should not be too stiff; but almost any nasal ointment formula may be employed.

In the same manner, ointment may be applied to the ears; throat; urethra; uterus; rectum; fistulous tracts and sinuses in any part of the body. Aside from the special canula for intranasal application, the syringe may be procured with a variety of the special tips as used with the ordinary liquid using syringe.

In our work, the little device has proven of much value, and it is hoped that others may find it equally useful to them.

7 East McMillan Street.

#### WHY THE HEALTH OF THE U. S. NAVY CANNOT BE COMPARED WITH CIVILIAN HEALTH AND OTHER MILITARY INSTITUTIONS.

By W. ARMISTEAD GILLS, M. D., Richmond, Va.  
U. S. Navy (Retired).

Among those who have been interested in my investigation of health conditions in the U. S. Navy have been members of the naval affairs committees in both House and Senate, civilian physicians, editors of various periodicals, and the every-day man in the street.

The most frequent inquiry has been, how does health in civil life, and that of the English Navy, compare with the health of the United States Navy? This is but a natural inquiry, and one of great importance to humanity, economy and defense; therefore, I have made a careful study of the facts in the case, which I shall attempt to present, not from a standpoint of science and the exhibition of median rates, percentages per tens of thousands, etc., which are vague to most persons, but a presentation of fundamental conditions in order to get at the reasons for preventable sickness in the Navy, that they may be appreciated by the layman, with the idea of remedying the underlying factors.

#### CONDITIONS IN THE U. S. NAVY.

Reckoning the education of our officers as a whole, the advantages and attractions advertised to the prospective sailor, including military discipline, physical exercises, selected subjects, with the financial and moral support of the greatest nation on earth, with the sole objective of the Nation's security—these are among the auspicious reasons why our Navy should excel in health over any institution—either civic or military. We commence with selected men—the flower of American manhood—mentally, physically and morally fit, accepting perhaps only thirty per cent of those who offer at recruiting stations, and it is our sole business, not only to elevate health, but teach the recruit his profession—seamanship. Navy medical officers are not responsible for the health of infants, children, women, old men and cripples. The Government furnishes such equipment as instruments, books, office rent, licenses, taxes, and no bills to collect; nor do they have to visit the sick over a large territory—the patients are not sought, but assigned, to barracks and hospitals under military authority. Our paymasters never plead hard times! It matters not whether we are traveling, taking a special course of instruction, on the sick list, or on leave of absence, the taxpayer pays the bills. When the ranks have been depleted on account of disease, disability, and death, we advertise for more recruits, and enter the statistics in the annual health reports, without a sufficient accountability to the people, publicly. During recent years, the quota of both sick and well, to each Navy doctor, has been 131 men, more

or less. In 1928, there were 68,674 patients on the sick list.

#### CONDITIONS IN CIVIL LIFE.

The civilian physician, especially in rural life, covers a large territory and his clientele not only extends to all classes and ages, but it also includes the seventy per cent who were rejected at recruiting stations as unfit for military duty and the thousands who were "invalided" back to civil life, with sickness and deaths thereafter—not charged to the Navy. One doctor serves every 700 people. Physicians not only have to furnish their own equipment, but collect their own income and do charity work. Inspections for cleanliness are done by sanitary inspectors—not doctors. Private practitioners, city and state health officers, discuss the civilian's health, publicly. Doctors are not required to attend court, unless expert testimony is given. When sick sailors desert, they seek civilian physicians, and the sickness is charged to civil life. A civilian doctor practices at the bedside throughout his entire active career. Industrial plants seldom require a physical examination before employment.

#### INSPECTIONS, REVIEWS AND EXAMINATIONS.

In civil life, the post office inspector, bank examiner, narcotic investigator, and packing house expert, make unannounced visitations, and when the civilian has violated the Federal laws, he is not only haled to court, but the proceedings are published. The fleet review, street parade, presentation of silver services to battleships, from which the public make their deductions as to health, not only represent the survival of the fittest, but such visitations are announced in advance, when everything is made "ship-shape" for the "inspection party," which include governors, congressmen, admirals, taxpayers. Our stewardship will be found in public documents. The sailors who have been separated on account of disease, disability, desertion, dishonorable discharge, and death, no longer wear the uniform, to attract attention. The industrial plant disposes of its by-products to advantage; our separations become liabilities on the pension roll. Within a period of nine years, we have "invalided" 39,508 of our selected subjects back to civil life.



## WHY CIVIL HEALTH IS INCOMPARABLE WITH MILITARY SERVICES.

Rear Admiral E. R. Stitt, Surgeon General U. S. Navy, stated in his 1926 report, page 2, to Secretary Wilbur:

"I instituted comparisons . . . analytical study of our personnel roster, in conjunction with those of other military services and of civilian institutions . . . it must be admitted that all comparisons are untrustworthy, because of differences in organization and in the nature of service, or in conditions under which service is rendered . . ."

The U. S. Naval Medical Bulletin for December, 1925, page 273, says, upon recommendation of the Surgeon General U. S. Navy and by direction of the Secretary of the Navy, a board of officers were convened to study the venereal disease problem of the Navy, and here is an excerpt from the board's findings:

"The board is loath to consider comparisons between the vital statistics of the Navy and other military and naval organizations, because it has no evidence that the statistics available have been collected under similar conditions and compiled by comparable statistical methods."

The U. S. Naval Medical Bulletin, May, 1925, incident to inoculation of antityphoid vaccine, which is required upon entering the U. S. Navy, has this to say:

"Commander C. G. Smith, Medical Corps, U. S. N., made the following remarks: '. . . recruits, who are young, unhardened boys, resistance to disease after inoculation is probably much lowered . . . Commander Smith has had extensive experience in dealing with recruits . . . His judgment that inoculations may affect adversely the resistance of susceptible recruits and pave the way for successful invasion of the tissues by the causative microorganisms of diseases of the respiratory type is corroborated by observations made at the U. S. Naval Training Station, Great Lakes . . .'"

I wrote to the Medical Director General of the English Navy, on October 7, 1927, inquiring whether the English sailor was inoculated or not? I was informed on October 18, 1927, ". . . persons entering the British Navy . . . are not required to be inoculated against enteric fevers on entry . . ."

In spite of the official statements disclosed, Surgeon General Stitt sent a special message to the House Naval Committee, with the assurance of "excellent health in the Navy," making a comparison of the sickness in our Navy with that of the English Navy.

This special message, a reaction to my three years' propaganda over the radio and from the platform about ill health in the Navy,

was done to prevent me from testifying before the Naval Committee concerning a subject which should be definitely settled, as both of us cannot be in the right. Admiral Stitt's assurance not only cancels his own distressing appeals for improvement, but it also cancels the pleas from the ablest officers in the medical corps, who have prayed for changes.

Admiral Stitt made a distressing plea to Secretary Wilbur for 136 more Navy doctors, which, he stated, had been needed since "May 16, 1923," and continues that this shortage of doctors "gives rise to grave anxiety." These "additional medical officers" have never been secured, due to a lack of legislation.

If this shortage gave "rise to grave anxiety" in 1926, when our personnel was 115,391, with 61,392 on the sick list, how could it be possible, two years later—1928—to boast of "excellent health" when our personnel was the same in 1928 as it was in 1926, and the number on the sick list had advanced to 68,674, and we had not obtained the "additional" doctors?

To such of my charges as:

"There is too much sickness in the Navy due to an antiquated system," and that "naval training stations are mere death traps," Surgeon General Stitt's defense was: "Truly a serious charge, and one that, if true, would be just cause for criticism. Fortunately, it is not true."

I have never made a statement which I could not prove. What would happen if a state health commissioner were to deliberately endeavor to thwart the efforts of a subordinate health officer, who, from the kindness of his heart, was trying to save the people millions of dollars, and human life? My undertaking, although within the Constitution, is no more obligatory upon me, as a retired officer, than any other citizen.

## WHY EXCESSIVE NAVY SICKNESS.

Recalling that the span of human life has advanced thirty-seven years within four hundred years, due to preventive medicine, all things considered, the sickness in our Navy is excessive for a first line of defense. This does not rest at the door of individual Navy medical officers, for we have medical officers who are leaders—the fault exists with the system.

There is no annual physical examination given the enlisted man to discern disease before it advances, and too many complainants

are returned to military duty without being given the benefit of the doubt. One reason for this is that the medical officer is required to sit on court martials where expert opinions are not necessary; besides, he must execute many other non-professional duties, too lengthy for review.

I believe it is unwise to commission recent graduates of medicine who have had neither hospital nor private practice, with the view of earning retirement after thirty years' service. Aside from a lack of practical knowledge of disease recognition, youth cannot appreciate great responsibility. Assured incomes, military rank and lack of public health discussions are among the factors which tend to destroy initiative. It is a matter of official record that certain ranking naval medical officers do not want the Navy's health discussed publicly. I hold the proof. From 1926 to 1928, inclusive, 123 Navy doctors have resigned their commissions.

#### WHAT IS THE REMEDY?

While I have worked out in detail how we can rectify the conditions, they are too lengthy to relate in such a brief paper, but here is the case in a nutshell: Medical officers should not be commissioned until they have had adequate training in civil life, and should be required to devote their entire time to the field of preventive medicine, enlist men physically fit, and give them an annual physical examination. But in order to attract the best doctors to the Navy, the system must be changed. Remove the three principal reasons—inadequate pay, abuse of the junior officer at the hands of certain senior officers, and employ clerks and business men, in order that the doctor may prevent disease and cure unavoidable sickness. Instead of rendering the annual health report to the Secretary of the Navy, who is not a medical officer, place it in the hands of an untrammelled commission of doctors, who would discuss Navy health with Congress, and see that public health laws are enforced. This is an economic measure, in addition to the relief of unnecessary human suffering; besides, it would give us an adequate first line of defense. We do not need more doctors. What is urgently needed is an adjustment of the system, and, that this may be brought to a successful issue, every self-respecting citizen should not only write

his Congressman, but President Hoover, who is much interested in both health and law enforcement.

3014 West Grace Street.

## Correspondence

### Look Out for Tularemia.

RICHMOND, VA.,

NOVEMBER 21, 1929.

#### TO VIRGINIA DOCTORS:

The hunting season is now open, consequently we would ask you to look out for cases of tularemia during the next three months. Below is given a brief description of this disease:

**SOURCE OF DISEASE:** In Virginia most of the cases are contracted from handling rabbits. It should be remembered, however, that the disease may be contracted from squirrels and also from ticks.

**COURSE OF DISEASE:** The *incubation period* is short, usually twenty-four hours. The *onset* is sudden, manifested by chills, headache, body pains, prostration and fever. The febrile period lasts from two to three weeks.

**PRIMARY LESION:** In most cases the primary lesion is a papule which later breaks down, forming an ulcer. In other cases the disease begins with a severe conjunctivitis. A few cases show no primary lesion. The glands which drain the site of infection are painful, swollen and tender. Only the regional glands are involved.

**MORTALITY:** In a series of 654 cases studied by the U. S. Public Health Service there were twenty-four deaths.

**LABORATORY DIAGNOSIS:** At the end of the second week it is possible to make the diagnosis by the agglutination test. *When laboratory help is desired, kindly send 5 c.c. of blood taken at the end of the second week.*

Kindly report all suspicious cases and notify us if you want consultation.

ENNION G. WILLIAMS,  
State Health Commissioner.



# President's Message

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As we all know, the Legislature of Virginia will meet again this winter. The Medical Society of Virginia, however, has no special legislation to request. At its last session the Legislature passed what seems to be an efficient Medical Practice Act, so the State Board of Medical Examiners has nothing to suggest this year. The State Department of Health, while desiring some increased appropriations and changes in the law to allow improvement in its operations, does not feel the necessity of getting our Medical Society to actively cooperate. At the same time, as is always the case, the Department desires the approval and cooperation of all members of the Medical Profession.

In times past it was found better to talk to the members of the Legislature in regard to medical problems before the session, and therefore I feel that it would be well for the different members of the Society to inform their friends in the State Senate and House of Delegates that the Medical Profession is only asking to be let alone this year and to give the present Medical Practice Act time really to be tried out. As has been the case for years, this Act merely requires that everyone, who wishes to practice the Healing Art on the citizens of Virginia, should have sufficient preliminary education and have given the recognized amount of time to professional education. This standard conforms to the wishes of the State Board of Education and to what is accepted as proper throughout the United States and the civilized world. We merely ask for the protection of the citizens and that everybody, including ourselves, should live up to a recognized standard of educational requirements.

While the State Department of Health is not asking the support of the Medical Society, I feel that the individual doctors should be

tremendously interested in one proposal of the Health Commissioner. He is proposing to extend the State care of tuberculosis cases by paying a part of their board in properly run local sanatoria. He is proposing this instead of trying to enlarge the present State Sanatoria, which are now nearly as large as they should ever be. The main purpose of the Department of Health is to help the local communities take care of the advanced cases, who are now spreading infection among their children. These cases frequently have to be kept in an institution for a long time, and now indefinitely fill up beds in our present sanatoria which should be used for apparently curable cases. The plan would save the State money because it would be relieved of the cost of building extra pavilions at the sanatoria, and at the same time would cut in two the cost of caring for the patients by the municipalities.

This plan appeals to me, an old TB worker, as a great step in advance, for the old open cases of TB now prove the greatest source of infection and one which we have long been fighting to eliminate. I feel that all our medical men are interested in reducing the amount of tuberculosis in Virginia and can well say a good word for our Health Commissioner, and try to get for him the necessary authority and appropriation to put this measure into effect. The State Health Commissioner has expressed himself as earnestly desiring the cooperation of the Medical Profession. His work is recognized all over the United States and anything that we can do to aid him in improving his work, as in the plan mentioned, is really incumbent upon those medical men who are trying to put Virginia again in the first rank among the States.

CHARLES R. GRANDY, M. D.

*President, Medical Society of Virginia.*

## Local Extension Work In Graduate Medical Education In Virginia

This section of the *Journal* will be devoted hereafter to news items regarding the local Extension Courses in Graduate Medical Education by the Medical Society of Virginia throughout the State.

This endeavor to provide continuous Medical Education to all of its members is based upon the Report of the Committee on Medical Education and Hospitals, which was approved and ordered to be put into effect by the House of Delegates, and which was published in the November issue of the MONTHLY.

The first meeting to formulate this work was held in the Society's offices on December 4th, and a full report of its action at that time will be published in the January issue in this section.

This educational program is, and will be for sometime, developmental, and necessarily slow in its application, but its need must be known and felt by every physician who desires to enlarge his own professional equipment and personal usefulness to his patients.

It is, thus, a double obligation, and an unusual opportunity for mutual service.

The papers printed below were read in the general meeting of The State Society at its last annual meeting, and were devoted to a discussion of this subject.

### Some Suggestions for Diagnostic Clinics and Current Clinical Reviews in the Society's Post-Graduate Work.\*

By J. ALLISON HODGES, M. D., Richmond, Va.

Graduate Medical Education is already being provided for in some states in a variety of ways.

The most popular methods have been first, the establishment in large medical centers of independently organized teaching units, where the training of the specialist is the basic idea in education; second, the use of city and community hospitals, where sporadic efforts have been made to keep the visiting physician abreast of advancing knowledge; and third, extension medical and clinical courses sponsored by state universities or intermittently by State Medical Societies, through their component county and group societies, where the

medical practitioners are taught in their own communities to consider subjects in which they have a common interest, such, for example, as physical diagnosis, diseases of children, minor surgery, dry clinics, laboratory work, obstetrics, etc.

The whole matter is a rather recent idea, and is still in the evolutionary stages, and it is this latter phase of continuous medical teaching of general practitioners in their own localities that will be discussed.

Some of the methods in use have been employed already in this State, notably, the annual programs of the State Society, the Post-Graduate Courses of the Medical Colleges, and the Clinical meetings of Component and Group Societies. I would not criticize the annual programs of our Society, which contain many valuable scientific contributions, but the method is more or less rigid and static, and does not reach nor teach practically the mass of practitioners in our State. This method is especially valuable as an adjunct, however, and should be retained and, in some respects, made more concentratedly practical and clinical. The dissensions, likewise, are often of little value, whereas they should be the best methods of practically applying the subject matter of the papers.

The Post-Graduate Courses already instituted by the two Medical Colleges are also of importance and value, but to quote the Dean of the State University, "The clinics so far held by the Colleges do not reach any large proportion of the medical men of the State." Also, some of our County, District and Group Societies have conducted educational and clinical meetings with great success, but these have been infrequent.

It would appear then, that the Society might enlarge its usefulness and importance, and perform a practical duty for its members by becoming, as it were, the sponsor and connecting link between the Medical Colleges and the profession and the various component societies, whereby better cooperation and more abundant clinical material and teaching personnel could be obtained to the mutual advantage of all. But even this is not sufficient to carry extension courses of Clinical Medicine and Surgery to practitioners throughout our borders, and keep our members up-to-date.

To many of these, "The mountain must be brought to Mahomet," for, because of various



and numerous reasons, needless now to discuss, the busy practitioner feels, or believes he feels it impossible to leave his practice, even for the excellent pabulum offered, oftentimes free and without price. The importance of properly estimating the physician's duty, every physician's duty and responsibility, of understanding and appropriating to himself the changes and advances of this revolutionary epoch in medicine, and carrying them to his patients, cannot be overestimated, nor too strongly stressed. Because, also, of remoteness and consequent want of personal and professional contacts, there are many places in this State into which the light of modern medicine needs to be carried.

This is superlatively an age of efficiency, and a medical revolution, even now friendly, threatens to eliminate the private practitioner in much the same way as the industrial revolution has supplanted the handicraftsman, unless he keeps pace with medical progress.

We regret that the leaders of the Medical profession, especially the Medical Colleges, have not displayed the foresight even of the legislators of today, for now these lawmakers have not only constructed, for instance, our highways, but they maintain them. Up to this hour, with the exception of two states, even the Medical Colleges have been in part recreant to their obligations to the profession, for they have sought medical students, only to graduate them, and after handing them their diplomas and wishing them godspeed, have quickly forgotten them! They may have produced good doctors, but they have failed to maintain their product.

As a result of all these conditions, the guidance and coordinating influence of the Medical Society of Virginia, the only fully organized Medical unit in the State, is imperatively needed to "carry the message to Garcia." The majority of the doctors in the State belong to this organization, and it should be their pleasure, as it is their privilege, to thus utilize this organized unit for the welfare of the physicians and the people at large. The interest and assistance of every physician must be aroused for, unless we meet our new and fuller obligations to our profession, even to a program of disease prevention, insurance companies, industrial concerns, and even the government may take over the control of the health of the people.

Only organizations such as this, through its

county, district, and group societies, can meet successfully such a situation.

As a basis for initiating this scheme of continuous Graduate Medical Education by local Extension Courses, the following suggestions and recommendations, based upon rather wide research, and more than forty letters from physicians in all parts of the State, are offered. The whole scheme is still in its initial stages, and in certain localities may have to be changed in a measure to meet existing conditions, all of which will be considered later.

Its essential basic features, incorporated more fully in the Recommendations submitted to The House of Delegates,\* are:

1. That the State Society be the Sponsor and connecting link between the different units;
2. That the component Societies, including district and group units, be the vitalizing factors;
3. That the Councilor in each Councilor District be the local Advisor and one of the local directors;
4. That the regional hospitals in each District be requested by the local component Societies to aid in the work, together with the Medical Colleges in the State;
5. That the Doctors' Educational and Clinical Bureau, when established, shall act as a supply and exchange station, as well as a professional clearing-house for correlation of courses and coordination generally of this extension work.

#### DISCUSSION

DR. J. W. PRESTON, Roanoke: The evolution of a practitioner of medicine is an interesting study. A generation ago, upon graduation, little more was expected of him than that he add to the scientific training given him by his Alma Mater, only such additional training as might be obtained by the exercise of his five senses and diagnostic intuition born of experience. Today a bewildering array of facts and near facts are heaped before him and he is at a loss as to where to turn, what to accept as proven and what to discard as mere theory. He must now also utilize for himself an increasing number of practical laboratory tests for use in his everyday work and must at least have a speaking acquaintance with the constantly increasing array of technical procedures and practices that may be brought to bear upon his every day problems.

In addition to the tremendously broadened aspect of the professional side of medicine, the economic problems of the present are pressing as never before and the economizing of time and energy is all important. The doctor's family must be fed and his children must be clothed and educated. The business world is moving at a pace never before attained, and upon every hand is investigating and making use of methods of efficiency, and labor-saving devices which are producing results as never

\*These recommendations, published on page 545 of the November issue of the *Monthly*, were ordered unanimously to be put into effect by the House of Delegates.

before. Wide-awake medical institutions, hospitals, group clinics, and specialists have seen the handwriting on the wall and are keeping step with the modern movement.

The time has now come that the general practitioner, the man upon whom the families of all sections of the country depend for the protection and maintenance of health can no longer afford to stand aloof and keep out of the current. His education is his investment and the hope of maintaining its permanency and of future dividends are entirely dependent upon his keeping it a working capital.

It is these things that have given momentum to the post-graduate movements so eminently successful in certain other states and that have brought the Medical Society of Virginia face to face with the fact that, if the physicians of the state as a group are to keep pace, some successful plan must be worked out.

To one who takes even a casual view, two difficulties of organized effort are met at the outset. On the one hand is the hesitancy of the recent graduate to join in a post-graduate movement for the reason that having just completed a course on instruction, presumably embodying the latest, he fails to see the need of additional study, and with the self-confidence of youth does not see the difficulties ahead, forgetting that the new things in medicine are old almost before they are learned. On the other hand, the more mature practitioner almost before he realizes it becomes a fixture in his community and so tied by the character of his work and his obligations, he loses step to such extent that interest in advances in the science of medicine ceases its appeal.

If a post-graduate movement is to meet with success, means must be so devised as to offer to each of these classes of physicians worth while programs that meet their needs and win their interest and support. With now practically all of the schools of the country A grade and running at full capacity, an increasing number of good men are being graduated each year, with equipment far superior to those of the past, so with keener competition knocking at the one door, and the mass movements of group medicine, corporation medicine, and, as some think, State medicine, at the other, it is time we look ahead.

I feel very sure that Dr. Hodges, in presenting the plan he has outlined for us, does not consider it the final word. Like most things in medicine it must of necessity, in a sense, be experimental. However, this may be, it does seem to embody what at this time would seem to be best for Virginia and its success or failure will depend upon the support it receives from the individual members of the Society.

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## Woman's Auxiliary, to the Medical Society of Va.

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### Report of the Annual Meeting of the Woman's Auxiliary to the Medical Society of Virginia.

The Woman's Auxiliary to the Medical Society of Virginia held its annual meeting in the ballroom of the Monticello Hotel in Charlottesville on Tuesday morning, October 22, 1929, at ten o'clock. There were about eighty

ladies present. The meeting was opened with prayer by the Reverend W. R. Mason, and the usual routine reports of the previous meeting, the board meeting of the day before, the President's report, and the Treasurer's report were promptly disposed of.

Dr. Fletcher Woodward read a charming message of greeting from Dr. Alderman, who was prevented by press of business from coming in person. Dr. Charles R. Grandy, President-Elect of the Medical Society of Virginia made an interesting talk and urged the Auxiliary to use its influence to get a large appropriation for food for the inmates of the State asylums, the present amount being an allowance of twenty cents a day per capita; it is planned to ask the General Assembly to increase this amount to thirty cents.

The Auxiliary had the honor of an address from Dr. William Gerry Morgan, of Washington, President-Elect of the American Medical Association, and it was very nice to hear from him that our Woman's Auxiliary was the first organization to invite him to speak at a meeting since he became President-Elect. It is hoped that later in the year Dr. Morgan will visit both Richmond and Norfolk and those local auxiliaries will have a chance to hear him speak.

The President of the Pennsylvania Auxiliary, Mrs. Walter J. Freeman, was the guest of the Auxiliary at this meeting, and made a brilliant address which has already appeared in the VIRGINIA MEDICAL MONTHLY. The Auxiliary had reprints made of this address, and any one interested in having some can obtain them by writing to Mrs. F. W. Upshur, 818 W. Franklin St., Richmond.

Mrs. Southgate Leigh, Chairman of Health Education, reported that her committee had helped to obtain a full time health unit in one county and the promise of a hospital for advanced cases of T. B. in another county; she also said she understood that a county nurse had been secured for Pittsylvania.

Dr. Ennion Williams appeared before the meeting and asked for support of the measure providing county sanatoria for advanced cases of tuberculosis, and it is hoped every woman in this Auxiliary will use any influence she has with her county and State officials to help put this over.

It is planned to publish in the MONTHLY separate reports of the work done by the



*Hygeia Committee* and any local committees whose work might be suggestive to other local auxiliaries, and it is hoped the county members in particular will follow these reports closely. Mrs. J. W. Preston read the following report from the National Auxiliary:

**Report of Woman's Auxiliary to the American Medical Association.**

Dr. J. H. J. Upham, Board of Trustees, presented a report from the Woman's Auxiliary to the American Medical Association, together with the recommendation of the Executive Committee of the Board of Trustees:

*To the Members of the House of Delegates:*

Realizing the magnitude of the work carried on by the members of this august body, we are not availing ourselves of the privilege of appearing before you in person but are submitting to you a very brief report of the year's activities of the Woman's Auxiliary to the American Medical Association.

The greatest step forward in the development of the Auxiliary has been in securing an Advisory Council from the Board of Trustees of the American Medical Association. This gives the members an assurance of being properly guided in the policies and destinies of the Auxiliary. This year the national auxiliary has requested the appointment of advisory councils from the state medical societies or associations for the state auxiliaries, and again, advisory councils from the county medical societies for the county auxiliaries; thus no work of any kind, except purely social activities, is being undertaken until it first has the approval of the organized profession.

A budget has been established and provision made for the incorporation of the national auxiliary. A seal has been designed and adopted and an accurate record of membership in a modern card index system has been prepared so as to assist us in maintaining a compact and efficient body by keeping our records accurate and up-to-date.

Thirty-three states are already organized, most of them having a definitely arranged program of work. The active membership of the thirty-three totals 11,000. This has been made possible only by the existing cooperation between the medical associations and the auxiliaries.

The national auxiliary sends the kindest of greetings to the members of the House of Delegates, and wishes to express its sincerest ap-

preciation for all of the help and the many courtesies which it receives at all times through the kindness of its individual members.

With every good wish and sincere personal regards, I remain, thankfully and sincerely yours,

MRS. ALLEN H. BUNCE, *President.*

July 12, 1929.

The Advisory Committee of the Board of Trustees recommends that this report be accepted and placed on file, and that the Secretary send the greetings of the House of Delegates to the Woman's Auxiliary, expressing its satisfaction with the actions of the organization and confidence in the policies outlined.

J. H. J. UPHAM, *Chairman.*

Dr. Upham moved that the report be adopted. The motion was seconded and carried.

As there was no election of officers this year, the meeting was able to conclude all business before adjourning to attend a luncheon at the Blue Ridge Club, and later in the afternoon most of the ladies went to the barbecue at the new Farmington Country Club. Norfolk will be the meeting place next year, and it is to be hoped that there will be a great deal of new work and several new auxiliaries to be reported.

MRS. F. W. UPSHUR, *President.*

## The Truth About Medicine

In addition to the articles enumerated in our letter of September 28 the following have been accepted:

Cutter Laboratory

Diphtheria Toxoid—Cutter

Eli Lilly & Co.

Merthiolate

Winthrop Chemical Co., Inc.

Luminal Capsules, 1½ grains.

### NEW AND NONOFFICIAL REMEDIES

Calcium Gluconate—Sandoz.—It contains calcium equivalent to not less than 12.40 or more than 12.80 per cent of calcium oxide. Calcium Gluconate—Sandoz is used to obtain the therapeutic effects of calcium. It is more palatable than calcium chloride and for hypodermic or intramuscular use is non-irritant. It is supplied in the form of a powder and in ampules containing 10 c.c. of a 10 per cent stabilized supersaturated solution. Sandoz Chemical Works, Inc., New York.

Acne Bacillus Vaccine.—An acne bacillus vaccine (New and Nonofficial Remedies, 1929, p. 369) marketed in packages of one 5 c.c. vial, and in packages of one 20 c.c. vial. Hollister-Stier Laboratories, Spokane, Wash.

Pertussis Bacillus Vaccine.—A pertussis bacillus vaccine (New and Nonofficial Remedies, 1929, p.

371) composed of several strains of pertussis bacilli, marketed in packages of one 5 c.c. vial, and in packages of one 20 c.c. vial. Hollister-Stier Laboratories, Spokane, Wash.

**Staphylococcus Vaccine (Aureus and Albus).**—A staphylococcus vaccine (New and Nonofficial Remedies, 1929, p. 375) prepared from staphylococcus aureus and albus in equal proportions, and marketed in packages of one 5 c.c. vial, and in packages of one 20 c.c. ampule. Hollister-Stier Laboratories, Spokane, Wash.

**Typhoid-Paratyphoid Vaccine (Prophylactic).**—A typhoid vaccine (New and Nonofficial Remedies, 1929, p. 378) consisting of a suspension of killed typhoid, paratyphoid A, and paratyphoid B bacilli. It is marketed in packages of one 5 c.c. vial, and in packages of one 20 c.c. vial. Hollister-Stier Laboratories, Spokane, Wash. (Jour. A. M. A., October 5, 1929, p. 1065.)

**Atoquinol—Ciba.**—The allyl ester of 2-phenylquinolin-4-carboxylic acid. The actions and uses of Atoquinol—Ciba are practically like those of cinchophen. It is supplied in the form of tablets 0.25 Gm. (4 grains.) Ciba Co., Inc., New York. (Jour. A. M. A., October 19, 1929, p. 1223.)

**Chiniofon.**—Sodium-iodoxyquinolinesulphonate. — A mixture prepared from approximately four parts of 7-iodo-8-hydroxyquinoline-5-sulphonic acid, containing not less than 26.5 per cent of combined iodine, and 1 part of sodium bicarbonate. Chiniofon, which is closely similar to preparations introduced under various proprietary names as wound antiseptics, has been found to be of use in the treatment of amebic dysentery.

**Bacillus Acidophilus Culture.**—Hollister-Stier.—A pure culture of *B. acidophilus* which contains not less than 150 million viable organisms (*B. acidophilus*) per c.c. at the time of issue. For a discussion of the actions, uses and dosage of bacillus acidophilus preparations see Lactic Acid-Producing Organisms and Preparations, New and Nonofficial Remedies, 1929, p. 220. Hollister-Stier Laboratories, Spokane, Wash. (Jour. A. M. A., October 26, 1929, p. 1309.)

#### PROPAGANDA FOR REFORM

**Committee on Foods.**—The Council on Pharmacy and Chemistry has established a Committee on Non-medicinal Foods to pass on all food products for which health claims might be made. The Committee has prepared a series of rules under which it proposes to operate and these have been approved by the Council on Pharmacy and Chemistry. Any product which it is desired to have considered for "Accepted Foods" should be presented to the Committee on Foods, American Medical Association, 535 North Dearborn St., Chicago. The rules for the acceptance of foods are patterned on the principles of New and Nonofficial Remedies, with such modifications and relaxations as are made necessary by the different nature of the products concerned. Reports on products considered, having received approval of the Committee, may be published in the Journal of the American Medical Association under the section devoted to the Council on Pharmacy and Chemistry with a special heading, "Committee on Foods." At the end of each year, all reports shall be assembled in book form, with the reports of all products accepted preceding the reports of all products rejected. This book shall have the title "Accepted Foods." (Jour. A. M. A., October 12, 1929, p. 1144.)

**Thallium Poisoning.**—Three children died recently in London from poisoning by thallium acetate administered for ringworm of the scalp. This is an addi-

tional indication of the growing importance of thallium compounds as a dangerous poison. The first therapeutic use of thallium was to check sweating. Its action in causing a loosening and falling out of the hair was a "by-product" and most of our information about its other and more general poisonous effects in man has been obtained from its employment in epilation. Thallium is closely related chemically to mercury and lead. Although they appear earlier, the symptoms of chronic thallium poisoning are more like those produced by arsenic than by these other metals. (Jour. A. M. A., June 1, 1929, p. 1865.)

## Book Announcements

**Interns Handbook. A Guide to Rational Drug Therapy, Clinical Procedures and Diets.** By Members of the Faculty of the College of Medicine, Syracuse University. Under the Direction of M. S. DOOLEY, A. B., M. D. Chairman Publication Committee. Philadelphia and London. J. B. Lippincott Company. 12mo of 254-xix pages. Cloth. Price, \$3.00.

**Minor Surgery.** By FREDERICK B. CHRISTOPHER, M. D., Associate in Surgery, Northwestern University Medical School, Chicago. With a foreword by ALLEN B. KANAVEL, M. D., Professor of Surgery, Northwestern University Medical School. Octavo of 694 pages, with 465 illustrations. Philadelphia and London. W. B. Saunders Company. 1929. Cloth. Price, \$8.00 net.

The great strides made in preventive medicine have upset the work of the family doctor, while the rapid increase in automobile and other injuries has greatly increased the work of the surgeon. Hence the great majority of doctors are surgeons.

This "majority" will appreciate the new book by Dr. Christopher. While this is not a textbook, it will meet a hearty welcome by the great mass of busy doctors who have neither the time nor inclination to delve into the elaborate treatises.—H.

**Practical Massage and Corrective Exercises With Applied Anatomy.** By HARTVIG NISSEN, late President of Posse Normal School of Gymnastics; Superintendent of Hospital Clinics in Massage and Medical Gymnastics, etc. Fifth Edition, Revised and Enlarged by HARRY NISSEN, President, Posse-Nissen School of Physical Education, Boston, Mass. Philadelphia. F. A. Davis Company. 1929. Octavo of 271 pages. Illustrated with 72 original half-tone and line engravings. Cloth. Price, \$2.50 net.

**A Practical Treatise on Disorders of the Sexual Function in the Male and Female.** By MAX HUHNER, M. D., Chief of Clinic, Genitourinary Department, Mount Sinai Hospital Dispensary, New York City; formerly, Attending Genitourinary Surgeon, Bellevue Hospital, Out-Patient Department and Assistant Gynecologist, Mount Sinai Hospital Dispensary, etc. Third Edition. Philadelphia. F. A. Davis Company. 1929. Octavo of 342-xv pages. Cloth. Price, \$3.00 net.

**The Rockefeller Foundation. Annual Report. 1928.** The Rockefeller Foundation, 61 Broadway, New York. Octavo of 460 pages. Illustrated. Paper.



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## Editorial

### A Study of Flatulence.

In the work of a day, whether it be that of a practitioner of medicine or surgery, flatulence plays no inconsiderable part as one of the big difficulties to be overcome. Patients suffer from "gas." Gas interferes with the normal state of the mind and body. Gas is a problem in constipation, in abdominal pain, in operations, in pneumonia, in heart disease, in gastric and duodenal ulcer, in infections, in "dyspepsia," in a "thousand" ways, gas or "distention" or flatulence vexes, harasses, inconveniences and annoys patients who come to the physician and the surgeon. It is a real problem and one that presents practical and work-a-day difficulties. Yet it is one that has not received that degree of careful study so well warranted by its frequency and importance in sickness and operation. So it is fortunate that Kantor and Marks\* have taken the time to bring forward a presentation of the subject under the title of "A Study of Intestinal Flatulence." In the histories of twenty-five hundred "dyspeptics," constipation, abdominal pain, flatulence, belching, headaches, vomiting, epigastric distress, heart burn, loss of weight and diarrhea appear as symptoms and in the foregoing order in the matter of frequency. It is known that flatulence is one of the common symptoms met with in practice. These authors divide the etiology of flatulence into two general heads: excessive gas intake from atmospheric air; the formation of gas from food decomposition. The abnormal bacterial flora production of gas and gas from the blood form the chief causes of its formation, while deficient expulsion, if

due to atony or malformation of intestinal loops and diverticula, brings about distention and flatulence. Besides, deficient gas absorption, resulting from interference with the intestinal blood supply or interference with mucosal integrity or intestinal tone, makes for the production of intestinal distention and flatulence. These authors take up the several phases of the etiology and give their views and those of other workers. Enormous amounts of gas are produced in the processes of gastric-intestinal digestion. Carbon dioxide forms the greatest part of the gas produced. In the upper reaches of the intestines, where gastric and intestinal secretions mix in the processes of food digestion, one observer computes that six liters are produced daily, while in the lower small intestines no figures are available. Other gases are present in small amounts as  $H_2S$ ,  $O_2$ ,  $H_2$ ,  $CH_4$  (marsh gas which with hydrogen is inflammable). Gas absorption is best accomplished in the following order  $CO_2$ ,  $H_2S$ ,  $O_2$ ,  $H_2$ ,  $CH_2$ .

The summary in this paper may place the general subject succinctly before the reader:

1. Intestinal flatulence ranks third among the ten most common complaints of private patients suffering from digestive disorders.

2. In general, flatulence may be caused by excessive gas intake or produced by deficient gas expulsion or by deficient gas absorption.

3. Atmospheric air plays a definite but not necessarily a major rôle in the etiology of flatulence.

4. The chronic stomach bubble is a rare but striking cause of flatulence.

5. The diet may cause flatulence but this factor can be readily controlled in most cases.

6. An abnormal intestinal flora plays the leading rôle in the flatulence of intestinal infections.

7. Gas may be secreted from the blood under certain circumstances. At times, this may be an important cause of flatulence. Evidence is presented for the belief that the greater part of gas so secreted is nitrogen.

8. Flatulence from deficient gas expulsion arises in complete obstruction and in the redundant colon. Constipation is not a frequent cause of flatulence.

9. Deficient gas absorption is an important cause of flatulence. It may result from interference with mucosal blood supply, destruc-

\*Annals of Internal Medicine, Vol. 3, No. 5, page 493.

tion of mucosal integrity or depression of muscular tone.

10. Interference with mucosal blood supply occurs in volvulus, portal obstruction, mesenteric vascular occlusion or sclerosis and general circulatory failure. The incidence of flatulence in hypertension was strikingly high (46%) in their cases.

11. Interference with mucosal integrity is best illustrated in colitis. Almost one-half of their colitis cases showed flatulence.

12. Interference with muscular tone (atony of the intestine) is probably a very important cause of flatulence.

13. In their opinion, a theory which would assume a sudden development of intestinal atony with rapid filling of the bowel by blood gases, chiefly nitrogen, would best account for many of the sudden baffling distentions encountered clinically.

14. Such a theory would explain flatulence of neurologic ileus, of toxemias associated with severe pneumonia, of sepsis and typhoid fever, of various hysterical states, as well as that encountered post-operatively.

### Cancer of Gall-Bladder.

Practitioners at work in the field, interested in the larger problems of medicine as well as the details of daily practice, may well, for a moment, note the papers of Judd and Baumgartner\* as they consider the rather rare clinical entity—cancer of the gall-bladder. Ordinarily, interest is more alive in those commoner conditions that one meets at the bedside and in the consulting offices and hospitals. Gall-bladder disease is common, but cancer of the gall-bladder is relatively rare. The frequency of the pathology of gall-bladder in patients applying for relief of symptoms makes the occasional possibility of cancer an exigency that may well be borne in mind. Besides, the larger study of this condition in the hands of workers whose experience is so great makes their presentation of value to all.

The record of removal of 14,978 gall-bladders at operation in 17 years (1910-1927) by one hospital group is unprecedented in America, in all probability, and naturally lends weight of the best authority in the pathological consideration of this subject by such hands. The rarity of the malady—cancer of the gall-bladder—is at once comprehended by the dis-

closure that, of this near fifteen thousand pathologic gall-bladders, only 89 were found to be malignant. The estimated incidence, therefore, of malignancy of this grave affection of the commonly diseased gall-bladder is about 0.5 per cent—a rare condition indeed. The types of malignancy were adenocarcinoma, squamous cell epithelioma, and sarcoma, but adenocarcinoma was most frequent in occurrence.

With a purpose to review the clinical side of this subject briefly, it may be observed that symptoms of malignancy of the gall-bladder were rather silent in some cases, but the more usual signs were characterized more or less by repeated attacks of colic stretching through a period of many years. The latter period of this clinical evolution of the disease, say the last three to six months, was characterized by constant pain and discomfort in the epigastrium or right upper quadrant of the abdomen. Besides, there were associated such stomach symptoms as nausea and vomiting. Loss of weight and weakness were also usual. In a small group, there were milder symptoms such as intolerance of food, gastric distress, belching, sour eructations, heartburn, with a minimal amount of pain over the gall-bladder area and withal little loss of weight or weakness. There was yet a small group of cases in which there was practically no symptom, until a sudden onset of pain occurs, associated with rapid and terminal symptoms of emaciation.

Jaundice was present but this depends upon pressure, encroachment and metastasis; thirteen of 56 of these patients showed jaundice. Tenderness was noted by pressure and a mass was palpable in 29 cases. Of 23 patients, achlorhydria was present in 4; in the remaining 19, hydrochloric acid was 32 and the average total acidity was 48. The blood picture was not characterized by anemia as found in cancer elsewhere in the body, for only 5 of the patients had hemoglobin less than 70 per cent and none less than 60 per cent. Metastasis appeared in the liver and adjacent lymph nodes and extra hepatic biliary duct system. Stones were found as an almost constant associate and were found in 94 per cent of the total number. This association must make one think of the possible relationship of gall-stone retention in the gall-bladder and ultimately, cancer of the gall-bladder.

The length of days following the operation

\*Judd and Baumgartner, *Archives of Internal Medicine*, Vol. 44, No. 5, page 735.



for the removal of the gall-bladder is told graphically by the authors in the following paragraph:

"Twelve patients lived one month or less; seven lived two months; three lived four months; three lived five months; two lived six months; three lived seven months; one lived eight months; one lived nine months; one lived less than one year, but the exact date of death was not given; three lived one year; one lived thirteen months; one lived fourteen months; one lived somewhat less than three years, three lived four years. \* \* \* One patient lived seven years and one lived eight years. Three patients were alive after fifteen months, eight years and fourteen years, respectively."

### The Coronary Flow.

As one reads the large "literature" on the action of digitalis in the treatment of heart disease and of its pre-eminence as a heart remedy, one is impressed with the widespread use of this drug and its general acceptance as the chief reliance in cardiac decompensation and irregularities. The action of this plant appears to be largely in reducing the rate of action and to coordinate the operation of the upper with the lower heart but just how this is accomplished is yet a matter of wide difference of opinion. It is, therefore, interesting to turn from this side of heart therapy to consider what would appear to strike directly at the fundamentals of all heart decompensation and muscular misfunction, and that is the improvement of the flow of blood through the coronary system of the heart. For after all is said, it would seem that all restoration of physiologic action of the heart muscle, whether it be in the neuro-muscular bundle and its branches or in the auriculo-ventricular muscular structure itself, must depend in large measure upon the promotion of adequate blood supply. So it is interesting to follow the paper of Gilbert\*, as he experimentally investigates the return flow in the coronary arteries in animals. The purine base diuretics were used in his experiments. The order of efficacy by vasodilator effect on the coronary arteries as shown by an increased return flow through the coronary sinus was shown to be as follows: Theobromine and its salts, theophylline ethylenediamine, theophylline sodium acetate and caffeine.

### The Questionnaire of the Committee on Revision of U. S. P., Tenth.

Our readers are urged to aid and support the efforts of the chairman of the committee of Revision of the United States Pharmacopoeia (Tenth) in securing data for the information of the next convention. The committee has sent out to a large number of practitioners and pharmacists a questionnaire. The inquiry sheet on which answers are to be made contains a list of drugs, chemicals, and preparations in the U. S. P., VIII and IX, but not admitted to the U. S. P., X. The physicians are requested to reply opposite each whether the item is used personally, often (O), rarely (R), or never (N.) If a large cooperation is secured by this inquiry, material aid will be given the committee in their efforts to inform the convention on these details of current use of these drugs.

It is hoped that practitioners receiving this letter from Dr. E. Fullerton Cooke will take time to make reply to the questionnaire therein contained.

A. G. B., JR.

### Twenty Years' Progress in Mental Hygiene.

Sound mental health is the most valuable and desired asset an individual can possess. Consequently mental hygiene which deals with methods of prevention of mental disorders and defects and the promotion of mental health, is a subject that is now claiming the attention of the thoughtful more than ever before. This fact was evidenced at a dinner-meeting at the Hotel Biltmore in New York City, November 14th, under the auspices of the National Committee and the American Foundation for Mental Hygiene. This notable occasion was the twentieth anniversary of the National Committee for Mental Hygiene, when nearly seven hundred mental hygienists gathered to review the outstanding accomplishments of this phase of public health, since it was started by Clifford Beers, following the publication of his book entitled, "A Mind that Found Itself." At this meeting were psychiatrists, psychologists, physicians in charge of hospitals for the mentally ill, presidents and professors of leading universities and colleges, school teachers, commissioners of public welfare, directors of state departments of mental diseases, editors and writers, authors, psychiatric social workers and others.

Those who had been selected to be spokes-

\*Archives Internal Medicine, Vol. 44, No. 1, page 118.

men in conducting a symposium, so to speak, for the occasion were, Dr. William H. Welch, of Johns Hopkins University, distinguished in the field of public health, who presided with his usual ability; Dr. William A. White, President of the International Congress for Mental Hygiene, and probably the best known author of psychiatry in America, Dr. James R. Angell, President of Yale University, Dr. Frankwood E. Williams, Medical Director of the National Committee for Mental Hygiene, and Mr. Clifford W. Beers, Secretary of that organization. The speakers dealt with the importance of prevention of mental disease, and delinquency, the application of the principles and precepts of mental hygiene and the conservation of mental health, and methods of carrying on a constructive program for the future. Some of the outstanding thoughts of the speakers had to do with further informing the public so as to have a better general understanding of mental hygiene and its value to the individual and the community; mental hygiene outside of hospitals for the mentally ill; its place in colleges as well as in the public schools; in industries and in dealing with the criminal and the delinquent. Mr. Beers came in for due praise and recognition for the great service he has rendered in this latest movement in interest of the mentally sick, but it was not forgotten to recall the work done by Dr. Phillippe Pinel who, during the French Revolution, initiated the humane care of the insane and of that great American benefactor and friend of the insane, Dorothea Dix, who fifty years later caused many thousand to be liberated from dungeon cells in jails and almshouses and cared for in hospitals, many of which were built in response to the favorable public opinion she created throughout the country and abroad.

It will be of interest to the reading medical public to be reminded again that the National Committee for Mental Hygiene (and State Societies likewise) "works for the conservation of mental health; the reduction and prevention of mental and nervous disorders and defects; the improved care and treatment of those suffering from mental diseases; the special training and supervision of the feeble-minded; and the acquisition and dissemination of reliable information on these subjects and on mental factors involved in the problems of education, industry, delinquency, dependency,

and others related to the broad field of human behavior. The committee seeks to accomplish its purposes by stimulating research into the nature and causes of nervous and mental diseases and defects; conducting surveys and studies of mental-hygiene problems; applying the knowledge gained from such studies through education and the promotion of beneficial legislation; encouraging psychiatric social work; establishing child-guidance and other mental-hygiene clinics; developing trained personnel; and cooperating with governmental and unofficial agencies whose work touches at any point the field of mental hygiene."

While it was the privilege of only four Virginians—representing the State Department of Public Welfare, the State Hospital system, the Bureau of Mental Hygiene and psychiatry, all of whom are members of the National Committee—to be present at the New York meeting, an opportunity will be afforded all of us in Virginia who are or may become interested in mental hygiene and mental disorders to attend the International Congress on Mental Hygiene to be held next May in Washington, D. C. At the same time and place the American Psychiatric Association and the Association for the Study of the Feeble-minded will hold their meetings. These gatherings so nearby will greatly promote the success of a mental hygiene program in Virginia.

W. F. D.

## News Notes

*May the old-time "Merry Christmas"  
Filled with meaning bright and gay,  
Be the song around your hearthstone,  
Making Glad your Christmas Day.*

### Physicians of Eastern Shore Guests of the Accomack County Medical Society.

At a regular meeting of the Accomack Medical Society held Wednesday evening, November 20, at the Drummondtown Tavern, the local society was host to the members of Northampton County Medical Society. The meeting of the two County Societies was for the purpose of organizing a "Journal Club" of the physicians of the two counties. The object of the "Club" is in no way an infringement on



either society but simply a means of organizing the eligible physicians for a joint society for the purpose of the more frequent discussion of papers and the general fostering of acquaintance of the physicians of both counties. The meeting was a very enthusiastic one and the following tentative plans were unanimously adopted. The name of the new club is to be the "Physicians' Journal Club of the Eastern Shore of Virginia." Any physician eligible to either County Medical Society can become a member. Each county shall alternate the presidency and the secretary shall also be from the same county as the president. The vice-president shall be from the opposite county and the next year simply reversing. The place of meeting shall alternate in the two counties, for the present, to be held first at Nassawadox and next at Accomack C. H. The time shall be the second Tuesday in each month at 8 P. M. After effecting an organization, the following officers were elected for the ensuing year: Dr. John Hamilton, Nassawadox, President; Dr. R. R. Nevitte, Temperanceville, Vice-President; Dr. James Lynch, Cape Charles, Secretary.

After the organization of the Journal Club the Accomack County Medical Society proceeded to its regular business and, it being the annual election of officers, the following were elected for the ensuing year: President, Dr. W. W. Kerns, Bloxom; Vice-President, Dr. Joseph H. Hiden, Pungoteague; Secretary-Treasurer, Dr. John W. Robertson, Onancock, re-elected. It was decided to hold the annual banquet sometime in December and the following committee was appointed for local arrangements, namely, Drs. J. H. Ayres, J. L. DeCormis and J. F. Edmonds. It was also unanimously voted that the members of the Northampton County Medical Society be invited to participate in our annual banquet, or ladies' night.

Dr. James C. Doughty made an interesting report of his attendance at the recent meeting of the Medical Society of Virginia.

J. W. R.

#### **The Mid-Tidewater Medical Society**

Held its regular quarterly meeting at Gloucester Courthouse, October 29th, with Dr. Hawes Campbell, of Enfield, president, in the chair. Reports of the meeting at Charlottesville were given by Dr. E. L. W. Ferry, of

Millers Tavern. Election of officers for the next year was as follows:

President, Dr. Horace Hoskins, Saluda; Vice-Presidents, Dr. M. H. Eames, Lanexa; Dr. A. W. Lewis, Ayletts; Dr. R. D. Bates, Newtown; Dr. E. L. W. Ferry, Millers Tavern; Dr. O. L. Powell, Yorktown; Dr. R. R. Hoskins, Matthews; and Dr. H. A. Tabb, Gloucester. The Secretary, Dr. M. H. Harris, West Point, and Treasurer, Dr. Jas. D. Clements, Ordinary, were re-elected.

Dr. Jas. R. Parker, Providence Forge, was admitted to membership.

Dr. H. A. Tabb presented a paper on Pyelitis, and general discussion led by Dr. Jas. D. Clements proved of interest to all.

The meeting adjourned to meet at West Point on the fourth Tuesday in January. Program to be announced later.

This society now embraces eight counties with an active membership of twenty-seven doctors residing within the counties.

#### **The South Piedmont Medical Society**

Held its regular semi-annual meeting in South Boston, November 26th, under the presidency of Dr. I. Keith Briggs, of that place. In the interval between the afternoon and evening sessions, supper was served the visitors at the Episcopal Parish House, in which building the meetings were held. There was a symposium on "Diseases of the Gall-Bladder" and a number of other interesting papers were presented by members and invited guests. Dr. George A. Stover, South Boston, is secretary-treasurer of the society.

#### **The University of Virginia Medical Society.**

At the meeting held on the evening of November 4th, the Society was addressed by Dr. H. H. Hazen, of Washington, D. C., on the subject of "Syphilis of the Cardiovascular System with Special Reference to Treatment."

Other subjects on the program were presentation of Clinical cases, the first, "Brain Cyst," presented by Dr. D. C. Wilson and the second, "A Case of Osteomyelitis with Septicemia and Spontaneous Pneumothorax," presented by Dr. Charles Savage. There was also presentation of autopsy material by Dr. Graham, which included a case of "Bacteria Endocarditis" and a case of "Congestive Heart Failure."

#### **Virginia Social Hygiene Council.**

On Wednesday, October 23, 1929, during the meeting of the State Medical Society, there was held a luncheon meeting of the Virginia

Social Hygiene Council at the Monticello Hotel, Charlottesville, Va. There were present seventy-five physicians. Dr. R. W. Garnett, President, presided. The principal speaker was Dr. Thomas Parran, Jr., who delivered an address on the "Practitioner's Part in the Prevention of Syphilis." The address was very instructive and entertaining and Dr. Parran made a deep impression on his audience.

Next, a Constitution and By-laws, which had been prepared by the officers of the Society, was presented and adopted.

The following resolution was presented by Dr. Paul Anderson, of Richmond. This was seconded and passed unanimously:

**"PREAMBLE AND RESOLUTION."**

"In view of the fact that many cases of syphilis and gonorrhea coming to the attention of the doctors of the State relinquish treatment long before they have ceased to be public health menaces to the community, and because it is the general opinion among doctors that this neglect is largely due to the expensiveness of the drugs necessary to modern treatment, it is hereby

*Resolved*, That the State Health Department be requested to keep on hand a supply of drugs for the treatment of syphilis and gonorrhea and distribute the same to the medical profession free upon request, under such restrictions as may be deemed necessary, or if it be not practicable to furnish the drugs free, distribute them to the profession at a minimum cost price.

*Resolved*, That the Council hereby offers its services to the State Board of Health Department for such help as it may render in attack upon the difficult public health problem of the control of Venereal Diseases in the State."

The Nominating Committee, composed of Dr. R. K. Flannagan, Dr. W. A. Brumfield and Dr. B. R. Hudnall, presented the following nominations for officers and directors for 1929-1930:

Dr. C. B. Ransone, Roanoke, President; Dr. Thomas Murrell, Richmond, Vice-President; and Dr. D. C. Smith, University, Secretary.

The following were nominated as directors: Dr. R. W. Garnett, Danville; Dr. W. A. Brumfield, Farmville; Dr. J. W. Preston, Roanoke; Dr. T. L. Driscoll, Richmond; Dr. W. L. Culbertson, Norton; Dr. Otis Marshall, Culpeper; Dr. A. M. Showalter, Christiansburg; Dr. Richard Fowlkes, Richmond; Dr. G. C. Tyler, Newport News; Dr. S. G. Gill, Norfolk.

These nominations were made unanimous.

The State Health Department has signified its willingness to comply with the resolutions adopted as far as possible. While it cannot furnish free remedies, the State Health Com-

missioner states that it may be able to place these remedies on the same basis as vaccines and antitoxins. To get the best terms from manufacturers, however, physicians interested are requested to advise the State Board of Health, Richmond, promptly, which remedies they would wish kept on hand and approximately the quantity they expect to order during the year.

**Married.**

Dr. Charles Martin Caravati, Richmond, and Miss Mary Virginia Dore, formerly of Staunton but more recently of Richmond, November 15th.

Dr. Horace Rowe Hicks, of the class of '28, Medical College of Virginia and last year an intern at St. Luke's Hospital, Richmond, and Miss Virginia Wilson Ferguson, Richmond, in October. They have moved to Switchback, W. Va., where Dr. Hicks is engaged in practice.

Dr. Alonzo Ray Dawson, Reedville, Va., of the class of '29, Medical College of Virginia, and Miss Dorothy Elise Walz, Richmond, November 19th. Dr. Dawson is at present serving an internship at St. Elizabeth's Hospital, Washington, D. C.

Dr. William Cary Holt, formerly of Hampton, Va., but now of Mexia, Texas, and Miss Elise Cosby Brown, Petersburg, November 6th. Dr. Holt is an alumnus of the University of Virginia, Department of Medicine, class of '26.

Dr. John McIntire Nokes, class of '27, University of Virginia Department of Medicine, and Miss Anna Macon Fawcus, University, Va., November the 14th. Dr. Nokes, formerly of Hollidaysburg, Pa., is now making his home in Nashville, Tenn.

Dr. Rudolph Cabell Thomason and Miss Izola Virginia Mulford, both of Richmond, November 27th. Dr. Thomason graduated from Medical College of Virginia last May and is interning at the Medical College of Virginia Hospitals this city.

**Annual Achievement Award.**

*The Pictorial Review* has announced that the winner of its annual Achievement Award of \$5,000 for the year 1928 is Dr. Florence Rena Sabin, fellow of Johns Hopkins University and a member of the staff of the Rockefeller Institute for Medical Research. This award is made annually to the American woman who has made the most distinctive con-



tribution of the preceding year to the fields of American art, science or letters. Dr. Sabin has had much to do with the analysis of the tubercular germ and with the research work that is going forward toward a complete cure for this destroyer of the human tissues.

Dr. Simon Flexner, president of the Rockefeller Institute, declares her to be the greatest living woman scientist and one of the foremost scientists of all time.

### **The Sectional Meeting of the American College of Surgeons**

For the States of Virginia, West Virginia, Maryland and the District of Columbia is to be held at Richmond, Va., January the 9th and 10, 1930, with headquarters at Hotel Jefferson. The local committee in charge of this meeting is composed of Dr. Carrington Williams, chairman, Drs. Robert C. Bryan, Frank S. Johns, G. Paul LaRoque, Karl S. Blackwell, Greer Baughman, Chas. R. Robins, A. C. Sinton, and W. L. Peple.

The program includes operative clinics in the Richmond hospitals in general surgery, eye, ear, nose and throat work, and the other surgical specialties. There are also clinical addresses, a scientific meeting, medical motion pictures, and a Hospital Standardization program consisting of a round table conference, discussions, and visits to local hospitals. A Community Health Meeting will be held on the evening of January the 9th. Fellows of this section of the College will be assisted in the program by Dr. George W. Crile, of Cleveland, Dr. Robert B. Greenough, of Boston, and Dr. Franklin H. Martin, of Chicago. Dr. Malcolm T. MacEachern, of Chicago, will conduct the hospital conference.

Dr. Clarence Porter Jones, Newport News, the Virginia chairman and ex-officio the presiding officer, invites all surgeons, surgical nurses, hospital superintendents, trustees and directors to attend these meetings.

### **A Health Examination Campaign**

Has been undertaken by the Five County Medical Societies of Greater New York. This is intended to show that the periodic health examination is the most important single factor in improving health through preventive measures, and it is hoped that individuals, community organizations, and physicians themselves will fully realize the value of these examinations. Public and parochial schools, and many civic organizations are joining in the

movement. Over a million and a half leaflets prepared by the Societies have been distributed by the Board of Education to the school children of the city, stressing the improvement of public health through preventive measures and urging parents to have periodic health examinations for themselves and their children.

### **The Southern Section of the American Laryngological, Rhinological and Otological Society**

Will hold its annual meeting in Roanoke, Va., Saturday, January the 18th, at Hotel Patrick Henry. Dr. Elbyrne G. Gill, Roanoke, is chairman of this section which will convene promptly at 9 A. M. Papers will be read by Drs. C. M. Miller, Richmond, Va.; J. A. Stucky, Lexington, Ky.; C. D. Blassingame, Memphis, Tenn.; J. J. Shea, Memphis; T. W. Moore, Huntington, W. Va.; Fielding C. Lewis, Philadelphia; E. E. Watson and Churchill Robertson, Salem, Va.; Fletcher D. Woodward, Charlottesville, Va.; J. B. Greene, Asheville, N. C.; M. S. Euen, Atlanta, Ga.; J. W. Jervey, Greenville, S. C.; M. R. Mobley, Florence, S. C.; and by the president of the organization, Dr. Ross H. Skillern, Philadelphia. Following the morning session, the members and visitors will be guests for luncheon at the home of the chairman, Dr. E. G. Gill.

### **Dr. John S. Horsley, Jr.,**

Richmond, Va., announces the opening of offices at 210 Medical Arts Building, this city, his practice to be limited to surgery. He will also continue his connection with St. Elizabeth's Hospital as attending surgeon.

### **Dr. J. A. B. Lowry**

Has returned to his home at Crewe, Va., after doing post-graduate work in New York City for several months. He will continue his work in general practice.

### **The Cherry Slip**

Placed in this issue of the MONTHLY explains itself. It will be a matter of convenience to us both if you will answer its silent appeal. This should be "Nuf sed."

### **Dr. Waverly R. Payne,**

Having just completed a year of service as resident obstetrician and gynecologist at Jersey City Hospital, has returned to Newport News, Va., and opened offices in the Medical Arts Building. He is a member of the Surgical Staff of Riverside Hospital and is limiting his practice to obstetrics and gynecology.

**Dr. D. Hunter Marrow,**

Of Union Level, Va., recently left for Florida to spend the winter at Daytona Beach, as is his custom.

**Dr. Joseph Caplan,**

Of the class of '25, University of Virginia, Department of Medicine, has located for practice at 2328 Entaw Place, Baltimore, Md. He recently returned from studying abroad and will limit his practice to diseases of the ear, nose and throat.

**The West Virginia Crippled Children's Council**

Is entering upon a survey to locate all crippled children in the State and the resources available for their care. In this work it will be aided by the West Virginia Crippled Children's Society, a private organization which is planning to organize in every county. The survey has been made possible by a State appropriation in 1929 for the work of the council, which though organized by an act of 1925 was without funds until this year. Mrs. Jean T. Dillon, R. N., formerly director of the division of child hygiene of the State department of health, has been appointed executive secretary. The first work to be undertaken will be to bring the children under professional care at convenient centers.

**The Sale of Christmas Seals Is On.**

In the United States, there are 1,400 affiliated tuberculosis associations operating under the ageis of the double barred cross, the insignia of the world wide tuberculosis movement. There are many local associations in our State. All but 5 per cent of the money raised from the sale of the Christmas seals is retained for use within the State in which collected and a large part of the remaining 95 per cent for use in the special county within which it is raised. So, by the buying of seals, we are helping our neighbors and in many instances those even nearer.

The National Tuberculosis Association states that within the last ten or twelve years the Christmas seal funds have helped to cut the death rate from tuberculosis in half, but, in spite of this, the disease is by no means conquered, for tuberculosis in some form still continues to kill more people between the ages of eighteen and forty than any other disease.

Every seal bought helps win this fight.

**Associated With Dr. Wheeldon.**

Miss Matilda Robertson, from the office of Drs. Allison, Ober and Brewster, of Boston, has recently become associated with the office force of Dr. Thomas Wheeldon, 318 West Franklin Street, Richmond, Va., to do special work in physiotherapy.

**Virginia Doctors Attend Celebration.**

Drs. James K. Hall and William F. Drewry, Richmond, and Dr. Hugh C. Henry, Petersburg, were the only Virginia doctors who attended the twentieth anniversary of the inauguration of the mental hygiene movement and the founding of the National Committee for Mental Hygiene, which was celebrated November 14th, at the Biltmore Hotel, New York City, with a dinner and a number of addresses.

**Southern Orthopedic Hospital.**

The property in Richmond, Va., known for sometime as Terrace Springs Sanitarium, has been converted into an orthopedic hospital, and will be open to the physicians of Richmond as in the past. The hospital will have thirty-five beds and the latest equipment for orthopedic work. Dr. Thomas Wheeldon will be chief of staff and do the orthopedic work.

The physiotherapy department, including the hydrotherapy work, will be continued, a complete new operating suite will be installed for surgical work, a complete new X-ray unit will be added, a children's ward especially for orthopedic cases will be introduced, and the nursing staff will include a specially trained superintendent and operating room supervisor.

**Dr. W. K. Dix,**

An alumnus of the Medical College of Virginia, class of '28, has opened his offices for the general practice of medicine at 210 Medical Arts Building, Richmond, Va.

**Dr. Thomas N. Spessard,**

Recently of Salem, Va., has gone to New York City, where he expects to spend the next two years taking post-graduate work in neurology and nuerosurgery at the Neurological Institute, of New York. Dr. Spessard graduated from the Medical College of Virginia in 1927.

**The Petersburg (Va.) Medical Faculty**

Held its annual meeting the latter part of November, under the presidency of Dr. E. W. Young. At the banquet, which is the feature of these meetings, talks were made by Drs. R. A. Martin and James H. Hargrave, Jr. The following were elected officers for the ensuing year: President, Dr. Herbert C. Jones; vice-



president, Dr. W. Preston Hoy; secretary-treasurer, Dr. John Harwood, re-elected.

#### **New Building for Martha Jefferson Hospital.**

The new building for the Martha Jefferson Hospital, Charlottesville, Va., was opened to the public for inspection on Thanksgiving Day, and there was a "Home-coming Day" on the Friday following for nurses who have graduated from this institution in the past twenty-five years of its existence. This new building was made possible by a very substantial gift from a resident of Charlottesville. It is of brick, consists of three stories and a basement, and is fireproof throughout, being fitted with all modern improvements and conveniences.

#### **Dr. Stuart McGuire,**

Richmond, organizer of McGuire Unit, officially known as Base Hospital No. 45 in the World War, was master of ceremonies at the dedication exercises of the new Richmond Stadium on Armistice Day.

#### **India Raises the Age of Marriage.**

The minimum age for marriage of girls in India has been raised to 14 years and the age of consent to 16 through the passage of a law by a very large majority of the Indian Legislative Assembly, which also raised the legal age of marriage for boys to 18 by the same act. The bill was introduced by a native member and had strong support from the Government. Penalties are imposed for celebrating any marriage below the legal ages, and the law is applicable to members of all religious communities.

#### **Dr. J. E. K. Flannagan,**

Of the class of 1925, University of Virginia, Department of Medicine, and for several years a member of the staff of Catawba Sanatorium, is now associated with Dr. Everett E. Watson at Mt. Regis Sanatorium, Salem, Va. Dr. Flannagan spent several months during the summer at Trudeau Sanatorium, Saranac Lake, N. Y., in study and clinical research, and came to Mt. Regis, December 1st.

#### **Examination for Entrance into the Regular Corps of the U. S. Public Health Service.**

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held at the following-named places on January 27, 1930: Washington, D. C.; Chicago, Ill.; New Orleans, La.; San Francisco, Cal.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable

medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

#### **Trachoma Found in Wythe County.**

Upon request of the local health board of Wythe County, Va., Dr. H. G. Grant, of the State Board of Health, with a representative from the U. S. Public Health Service, recently examined a group of people in a certain community of that county and found eighteen definite cases of trachoma. This has raised a question as to whether there may be other cases of trachoma scattered throughout Wythe and the adjoining counties.

If there is reason to suspect trachoma cases in any community, the State Board of Health should be advised, that proper steps may be taken to rid Virginia of this communicable disease.

#### **The Ex-Interns' Association of St. Elizabeth's Hospital,**

Held its sixth annual meeting at the hospital in Richmond, Va., October 1st, with Dr. A. A. Houser, Richmond, president, in the chair. There were sixteen members present and, altogether, this was one of the best meetings of the Association. In addition to the address by the president, papers were prepared for this meeting by Drs. W. G. Rainey, Princeton, W. Va.; Wright Clarkson, Petersburg, Va.; Paul C. Colonna, New York; M. L. Breitstein, Baltimore; and John S. Horsley, Jr., Richmond. The morning session of clinics and operations was followed by luncheon at the Commonwealth Club. The papers were presented at the afternoon session. These were followed by the business session, at which time the following officers were elected for the coming year: President, Dr. Paul C. Colonna, New York; Vice-President, Dr. Harry J. Warthen, Baltimore; Secretary-Treasurer, Dr. John S. Horsley, Jr., Richmond, re-elected. In the evening, all the members were entertained at supper by Dr. and Mrs. J. Shelton Horsley, at their home "Greystone."

**Dr. James Floyd Terrell,**

Of the class of '18, Medical College of Virginia, announces the opening of his office in the Croyden Apartment Building, 2700 Idlewood Avenue, Richmond. His work will be limited to general practice. Dr. Terrell has been for some years in the U. S. Navy, and was recently connected with the Surgeon-General's Office, in Washington, D. C.

**The American Pharmaceutical Manufacturer's Association.**

"Keep well—Consult your Family Physician" is the slogan proposed as a part of the advertising campaign to be fostered by this Association in the coming year. Definite action on the nature of this campaign as well as action on the future research program of the Association will be taken at the semi-annual meeting to be held in the Hotel Washington, Washington, D. C., December 16 and 17, 1929.

The first day's meeting will be given over largely to problems of executive nature and a general discussion of means and ways of obtaining greater efficiency and economy in distribution.

The second day will be devoted primarily to meeting members of the various government bureaus and departments with which the members of the Association come in contact in the course of their daily activities.

A visit to the Food, Drug and Insecticide Administration, Department of Agriculture and to the Prohibition and Narcotic Divisions of the Treasury Department will occupy the forenoon of December 17th.

At the luncheon on this day, Senator George H. Moses, of New Hampshire, President pro tempore of the United States Senate, will be the guest of honor and will address the members. The afternoon will be devoted to addresses by other Government officials and reading and discussion of the reports of the Research Board and the Contact Committee of the Association.

Among the important topics to be discussed in the executive sessions are Publicity, the Proposed Census of dispensing physicians, Institutional Advertising and the "Consult your Family Physician" campaign.

This year's president is Dr. H. Sheridan Baketel, Jersey City, N. J.

**Dr. Benj. E. Hunt,**

For sometime of Holden, W. Va., is in Philadelphia, where he is taking a post-graduate

course in gynecology and obstetrics at the Graduate School of Medicine, University of Pennsylvania. Dr. Holden is a graduate of the Medical College of Virginia in the class of '24.

**Dr. C. W. Thomas,**

Recently of Floyd, Va., has located in Martinsville, Va.

**Disabilities From Infantile Paralysis Should Be Corrected Promptly.**

Now that the infantile paralysis outbreak in Virginia is at a close, the State Board of Health has sent letters to all Virginia doctors, offering to cooperate with them in securing to every victim the benefits of the advances and discoveries of modern science. The attending physician can have his patients examined and proper care instituted for those able to pay, while there are orthopedists and institutions where patients may secure aid in accordance with their financial condition, for those unable to pay or able to pay only in part.

Some of the 280 victims of the infantile paralysis outbreak in Virginia, this year, have recovered entirely. If you wish assistance for any of your patients, write the State Health Commissioner, Richmond, Va., giving patient's name and address and present condition.

**U. S. Civil Service Examinations.**

The United States Civil Service Commission, Washington, D. C., announces open competitive examinations for Senior Medical Officer (internal medicine), and Junior Medical Officer (interne). Applications must be on file with the Secretary of the Fourth U. S. Civil Service District, Washington, D. C., not later than December 26, 1929.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

**Maternal and Infant Mortality, Great Britain.**

The maternal death rate in England and Wales in 1928 was 44.2 per 10,000 live births, the highest rate recorded since 1911. The infant mortality rate during the same year was 65 per 1,000 live births—the lowest on record.

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ing room fixtures, Kny-Scheerer sterilizers, etc., can be bought separately. Write Mr. James H. Price, Attorney for estate, Times Dispatch Building, Richmond, Va. (*Adv.*)

## Obituary Record

### Dr. Harry Taylor Marshall,

Walter Reed Professor of Pathology and Bacteriology at The University of Virginia, died on November 8, 1929, in the American Hospital in Paris, France, of pneumonia following an operation. He was buried in Brussels.

At the time of his death Dr. Marshall was in Europe on a year's leave of absence from the University in an effort to regain, in a measure, his health, which intense application to his work had seriously impaired. His wife, nee Nancy Lea, of Philadelphia and Albemarle County, Virginia, and four of his five children were with him in Europe.

Dr. Marshall was born in Baltimore, Md., on May 19, 1875, and was the son of Colonel Chas. Marshall, Chief of Staff and biographer of General Robt. E. Lee; and Sarah Rebecca (Snowden) Marshall. He held the degrees of bachelor of arts (1894) and of doctor of medicine (1898) of Johns Hopkins University. During the summers of his collegiate period he was attached to the U. S. Coast and Geodetic Survey as recorder.

He came to the University of Virginia in 1908 from the Professorship of Pathology at the Medical School of the Philippines in Manila, where he also held the position of Secretary and of Registrar. Few teachers have ever been better equipped by temperament, training and scientific spirit for the teaching of the art of medicine, than was Dr. Marshall. He was, however, essentially a research man and it was the disappointment of his life that the driving duties of an inadequately staffed professorship did not admit of his following the many lines of research his active intelligence had marked for special attention. His travelling fellowship with the Rockefeller Institute for Medical Research during 1901 and 1902 threw him into close relationship with some of the greatest scientists of America and Europe, among the latter Dr. Paul Ehrlich in whose laboratory he was privileged to work for months. His research activities at Johns

Hopkins University and as special pathologist with the U. S. Bureau of Plant Industry in the poison plant investigation (so-called loco-weed investigation) marked him as an unusually careful investigator.

The search for the truth of things and the advancement of science loomed so large with him that the personal equation sank into insignificance and so his accomplishments in the field of research have been, in great degree, overshadowed; not so, however, in the realm of teaching as the thousands he has taught will testify. Thoroughness, unwearied care in the preparation of the materials for teaching, insistence that the student know the subject, however much time it might take to enlighten, characterized his work always and drew in unwonted degree on his vitality. He taught pathology by the autopsy and autopsy material, and was never too busy or too tired to officiate personally in the detailed search for the primary cause of death.

Notwithstanding the demands upon his time as a teacher, Dr. Marshall yet found time to be a citizen in the true sense. He interested himself in the development of a local public health nurse service long before such services became generally popular. Later, he took active part in the organization of an adequate county, city and University health department and in the establishment of Blue Ridge Tuberculosis Sanatorium, which last, as local member of the State Board of Health, he closely supervised in its beginnings.

As technical member of the Virginia Tuberculosis Commission of 1916-18, whose report resulted in the mill-tax fund for tuberculosis control and the more adequate financing of tuberculosis work in Virginia, he gave unstintedly of his time and thought. In this matter alone he deserves high place on the roll of public benefactors.

Dr. Marshall was a Phi Beta Kappa and a member and actively interested in the work of a number of societies, including the American Association of Pathologists and Bacteriologists, of which he was also president in 1922, American Association for the Advancement of Science, his State and local medical societies and the American Medical Association. He was also for seven years an associate editor of the VIRGINIA MEDICAL MONTHLY.

Whatever post Dr. Marshall occupied, whether as member of a Board, a society or

a college faculty, he took an active part and when careful thought and trained intelligence was needed he was always to the fore. He would not affiliate where he could not be useful and on appropriate occasion he never failed to express his judgment unmistakably in clear balanced and vigorous terms. His scientific published papers, all too rare, are couched in carefully concise English and exhibit always a profound knowledge of the subject treated. They are invariably fruitful of suggestions for further study.

Dr. Marshall's influence upon the development of the Medical School at the University of Virginia during the past twenty years can only be adequately told by the eloquent President of that institution, who in very large measure leaned upon his enlightened ability and judgment. It is too long a story for record here. His colleagues know and appreciate his service to the full.

He was a model father and husband, an active consistent though liberal churchman, a charming host and genial companion, thoroughly appreciative of all the cultural aspects of life, he possessed too a keen and unfailing sense of humor without a tinge of malice.

In other words he was a broad-gauge Christian gentleman and scholar whom to meet was a privilege and to be accepted in the inner circle of his friendship was a real honor.

R. K. F.

#### **Dr. Simon P. Conduff,**

Draper, Va., died at the Pulaski Hospital, November 24th, after an illness of two weeks. He was a native of Floyd County and fifty-six years of age. Dr. Conduff graduated from the Baltimore Medical College in 1898 and joined the Medical Society of Virginia several years later. He had been practicing in Draper and vicinity for nearly thirty years. At the time of his death, he was mayor of Draper and president of the Bank of Draper. His wife died several years ago, but he is survived by four children and a large family connection.

#### **Dr. George Price McCoy,**

Hopewell, Va., well known eye, ear and throat specialist, died November the 5th, at Monterey, Va., to which place he had gone with his family to attend the funeral of Mrs. McCoy's mother. His death was due to blood poisoning. Dr. McCoy was forty-eight years of age and had graduated in medicine at the former University College of Medicine in

Richmond, in 1905. He was a World War veteran, having been in service overseas. He has been a member of the Medical Society of Virginia for several years. His wife and two young children survive him.

#### **Dr. Victor Clarence Vaughan,**

Eminent scientist and author and for thirty years dean of the Medical Department of the University of Michigan, died suddenly at his home just outside of Richmond, Va., November the 21st. He was seventy-eight years of age and a graduate in medicine from the University of Michigan, in 1878. He located in Richmond about two years ago, upon retiring from active work. He was a prominent figure in the medical history of this country and had been active in many organizations. He was also an ex-president of the American Medical Association. Dr. Vaughan served in both the Spanish-American and World Wars. He is survived by his widow and four sons, three of whom are physicians—one, Dr. Warren T. Vaughan, of this city.

#### **Dr. William A. Thornhill,**

Charleston, W. Va., an alumnus of the University of Virginia, Department of Medicine, in the class of 1901, died November 14th, of heart disease. He was forty-eight years of age and a native of Appomattox County, Va., but had practiced in Charleston for sometime, specializing in roentgenology.

#### **Dr. Oscar Woods Holloway,**

Of Durham, N. C., died October the 2nd, of heart disease, at the age of fifty-four years. Dr. Holloway was graduated from the Medical College of Virginia, Richmond, in 1901. At the time of his death he was a member of the staff of Watts' Hospital, in Durham, and was connected with a number of medical organizations.

#### **Dr. William Jordan Thigpen,**

Tarboro, N. C., died on September 20th. He was fifty-four years of age and a graduate of Jefferson Medical College, Philadelphia, in 1900. He was prominent in his section and a member of the staff of the Edgewcombe General

#### **Dr. Joseph Low,**

Welcome, Va., died November the 2nd, death being due to heart disease. He was sixty-two years of age and had graduated in medicine from the Chicago Homeopathic Medical College in 1888. He was formerly professor of the theory and practice of medicine at the Hahnemann Medical College and Hospital.





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Supt. Iola-Monroe County  
(N. Y.) Tuberculosis Sanitarium, in Annual Report.

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61st Annual Meeting, Medical Society of Virginia in  
Norfolk, Fall 1930

# Virginia Medical Monthly

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## THE EXTRASYSTOLE.\*

By JAMES W. HUNTER, JR., M. A., M. D., F. A. C. P.,  
Norfolk, Va.

"Life insurance companies are giving more and more attention to heart conditions," writes the associate medical director of one of our largest life insurance associations under the date of October 20, 1928, "and especially in connection with an examination involving the use of the electrocardiograph. I have just returned from the annual meeting of the Medical Directors' Association of America, held last Thursday and Friday in New York City. Special emphasis was placed upon the value of the electrocardiograph in cases where question arises as to the integrity of the heart muscle." "I confess that up to the present time my contact with the electrocardiograph," writes another, "has not been of a comforting character. The thing that gives us more concern than anything else is the determination of the occasional extrasystole and the reports we have had so far contain too many of the 'may or may not be.'" It is this question of "may or may not be" that has induced me to write the paper that I now present.

A glance at, and an analysis of the leading textbooks on medicine that are available (I say "textbooks" advisedly, as the great mass of periodical literature on cardiology that has now accumulated is not to be consulted outside of certain libraries and it is the duty of the author of a textbook carefully to examine all sources of information and to give his readers the "best that is known and thought") leads us to the conclusion that there are definitely three schools of thought in regard to the clinical interpretation of the extrasystole. First, we have the school of Baumgarten, or the teaching that the extrasystole is of grave import; second, the school of Mackenzie, who considers the extrasystole of no importance; and, third, the school of Lewis and his followers, who, while acknowledging the extrasystole as a pathological entity, frankly beg

the question as to its clinical import. Let us consider these teachings in some detail.

In the first edition of his monumental work on medicine, published in 1893, the late Sir William Osler speaks of the various types of arrhythmia and quotes Baumgarten. "The causes of these various disturbances of rhythm," he writes, "are thus described by G. Baumgarten:

"(1) Those due to central cerebral causes, either organic disease, as in hemorrhage, or concussion; more especially physical influences.

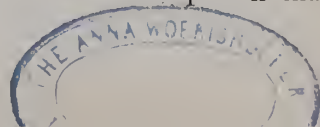
"(2) Reflex influences, such as produce cardiac irregularity in dyspepsia and diseases of the liver, lungs, and kidneys.

"(3) Toxic influences. Tobacco, coffee, and tea are common causes of arrhythmia. Various drugs, such as digitalis, belladonna, and aconite, may also induce it.

"(4) Changes in the heart itself. (a) In the cardiac ganglia. Fatty, pigmentary, and sclerotic changes have been described in diseases of this sort and may have an important influence in producing disturbances in the rhythm, but as yet we do not know their exact significance. They may be present in cases which have not presented arrhythmia. (b) Mural changes are common in conditions of this kind. Simple dilatation, fatty degeneration, and sclerosis are commonly present, the two latter usually associated with sclerosis of the coronary arteries."

In this opinion Osler is supported by Anders and Musser in 1920, who declare that Baumgarten's classification of the causes of the extrasystole, as quoted by Osler, is the best. A little later, in 1924, Norris and Landers write that the significance of extrasystoles is very variable. To quote: "They (the extrasystoles) may be due to many direct or reflex causes. Thus the excessive use of tobacco may produce them, as may increased blood pressure, especially with a weakened myocardium." And still later, in 1925, O. T. Osborne, while quoting others, gives it as his own opinion that

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22 to 24, 1929.



"while young persons may occasionally have these extrasystoles, they are most commonly found in older persons and those who have heart disease, and in older persons (who) have never had such irregularity of the heart, it seems to be indicative of beginning cardiac derangements."

From the school of Baumgarten, or those who think that the extrasystole is of grave import, let us turn to that of Mackenzie. "For over forty years," he writes in the fourth edition of his book on diseases of the heart, published posthumously in 1925, "I have kept records of patients with extrasystoles. They were found to be rare in the young, and a little more frequent about middle age. Over fifty years of age many people exhibit them, while probably every person over sixty exhibits them at one time or another, or continually. We recognize in this review an occurrence similar to what happens to people with grey hairs, and so far as I have seen, I would attach no more gravity to the one sign than to the other." "If cardiac impairment is found associated with extrasystoles," he continues, "then the prognosis depends upon the condition of the heart which leads to the impairment, and not to the extrasystole, which, at the worst, indicates but a coincident change."

Pratt, writing also in 1925, agrees with Mackenzie and defines an extrasystole "as a premature contraction of the heart that is independent of the normal rhythm and arising in response to an impulse originating in some part of the heart other than the sinus node." "Probably few people," he continues, "who attain to middle life have escaped having an occasional extrasystole at sometime or other, although the majority have been quite unaware of its presence. \* \* \* Rarely found before the age of twenty, they increase in frequency as age advances. They are commonly found after middle life in persons who present evidence of arteriosclerosis (Hay), but Mackenzie says that his experience has led him to expect them in every one over sixty years of age. Whether frequent and persistent extrasystoles are more common after forty years of age in patients who present definite signs and symptoms of heart disease than in those with normal hearts has not been settled. They are often met with in young nervous individuals. They may be produced in susceptible subjects by tobacco or alcohol. Digitalis induces extrasystoles in some people."

In marked contrast, however, to the schools, which we have called those of Baumgarten and Mackenzie, we have that of Lewis and his followers, who frankly beg the question. Lewis defines extrasystoles as "contractions of the heart which disturb the rhythmic sequence by appearing early and in response to pathological impulses." "It must be admitted," he continues, "that all such beats are evidence of a pathological condition and that the pathological process has its seat in the tissues of the heart. The presence of premature contractions is an indication of a local disturbance of cardiac nutrition, whether temporary or permanent, but it is an aspect that should not be allowed undue prominence. Very many people are temporarily affected by premature beats which do not reappear, while the heart manifests no sign of further damage, either at the time or afterwards. In such instances it is impossible to suppose that the disturbance of the cardiac function has been more than transient or that the nature of it has been serious. Observations and inquiry also teach that they may be present constantly and for long periods, and that those who manifest them may do so from an early to a good old age, such patients never showing any other sign or symptom of cardiac disability. It may be said, therefore, that in themselves premature beats cannot be regarded as evidences of serious involvement of the heart muscle, although such involvement is often found in conjunction with them. \* \* \* Because they frequently consort with relatively grave cardiac maladies, their detection demands a close scrutiny of the heart from other points of view. When after such scrutiny, no further evidences of cardiac damage are detected, their value as signs becomes negligible. It is also to be observed that if additional and significant symptoms or signs are found, the prognosis should be based on these, and the extrasystoles again become negligible. In other words, they serve a purpose in diagnosis by directing attention to the heart, but are of little or no value in prognosis."

Cohn writing in Nelson's Loose Leaf Living Medicine also begs the question, as does also McCrae in the last edition of Osler's work, 1926, Hamburger in Cecil's Textbook of Medicine in 1927, and Willius in 1929. The case has, however, been so succinctly argued by Roth in 1928 that it is thought eminently worth while to quote him here.



"Our views regarding the etiology of extrasystoles are based largely on speculation. Extrasystoles are occasionally met with in young children; most often, however, they are found in the middle-aged. Almost every one has them at one time or other. They are not necessarily associated with grave cardiac conditions; in fact, they are rather infrequently met with in the course of decompensation as a result of valvular heart disease, except at the time of a sudden occlusion of one of these vessels. To assume a pathological condition, therefore, every time we encounter extrasystoles, especially in the face of the great frequency with which they occur in the apparently healthy, would be giving these disorders an entirely unjustifiable and undue prominence.

"No doubt, temporary *disturbances in cardiac nutrition* play an important role in some cases; while in others, *toxic states* of the myocardium may be the underlying causes. *Certain drugs*, notably those of the digitalis group and quinidine may cause extrasystoles to appear in large numbers, together with other evidences of toxic involvement of the specific system and the myocardium proper (sino-auricular block and auriculo-ventricular heart block). Accordingly, when extrasystoles appear, the further use of these drugs is contraindicated. We have no means of judging the possible effects of *endogenous toxins* (gastro-intestinal, uremic, etc.) upon the intrinsic cardiac mechanism. They, too, may play a part. It is of interest to note that extrasystoles have been observed in the presence of *focal infection* and that the eradication of the infection was promptly followed by the termination of the extrasystolic arrhythmia. *Nervous influences* are known to enhance the frequency with which extrasystoles may appear; but it is questionable whether nervous influences can ever produce them in a perfectly healthy organ. It is more likely that the nervous influence merely augments the mischief in a heart that is already the seat of some pathological process or one that bears the brunt of at least a mild toxemia.

"In any event, judging from the foregoing, the *mere presence* of extrasystoles cannot be used as a guide in prognosis. To quote Lewis: 'They serve a purpose in diagnosis by directing attention to the heart, but are of no value in prognosis.'

From this bewildering array of conflicting evidence and opinion is there no escape? What

are the truths to be gathered from the presence of the extrasystole? Is it of a pathological or of a non-pathological import? How is it to be clinically interpreted? Let us consider the question. Let us consider in some detail the diagnosis, the origin and the nature of the extrasystole.

From a clinical standpoint the extrasystole is easily diagnosed. A careful examination of the pulse by the educated finger will detect it. We may have an extra beat almost immediately following the normal, with a normal or compensatory diastole, an extra or premature beat occurring at regular intervals, as a bigeminy or trigeminy, or even an extra beat between two normal ones, an interpolation, as it were. Similarly, we may auscultate the apex beat; all of the phenomena observed by the educated finger will be detected by the educated ear. Further, it is observed that extrasystoles almost invariably occur in association with a slow pulse; often an acceleration of the heart beat by exercise will overcome them and thus afford a differential diagnosis between this and other cardiac arrhythmias.

But we must recollect that there is always a certain personal equation of the examiner. No two of us will see the same picture or appreciate the same findings. Of all of the senses, that of sight is the most perfect. Like Othello, we would have the ocular proof. "Inexact method of observing, as I believe," writes Sir Thomas Lewis, "is one flaw in clinical pathology today. Prematurity of conclusion is another, and follows in part from the first, though in chief part an unusual craving and veneration for hypothesis, which besets the minds of most medical men, is responsible." Speculation in regard to the differentiation, the origin and the nature of extrasystoles is not sufficient.

With this thought in mind Mackenzie in 1892 introduced his polygraph. By simultaneous tracings of the jugular and radial pulses he was able to obtain the origin of the extrasystole. "In 1892," he reminds us, "I obtained the first record in a human subject which showed the relation of the auricle to the ventricle, in what is now recognized as the ventricular extrasystole. In the interpretation of the tracing I was able to demonstrate that the ventricle contracted earlier than, and independent of, the auricle, so that while the apex beat showed an irregularity, the rhythm of the auricle was undisturbed." He was able to

differentiate the extrasystole arising from the auricle, or that from the auriculo-ventricular node, and that arising from some point in one of the ventricles. This was, in fact, the first great step in modern cardiology. I have, accordingly, reproduced two of the tracings as taken from Mackenzie's book. Figure 1 is

extrasystole, which arises in the branches within the ventricle, by the fact that it precedes or occurs at the same time as the normal auricular contraction." To Mackenzie belongs the title of the father of modern cardiology and to him must the palm ever be awarded.

With the introduction of the string galvano-

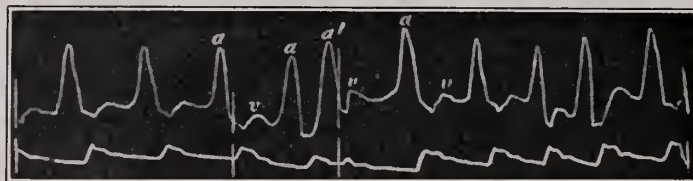


Fig. 1.—From Mackenzie. Simultaneous tracings of the jugular and radial pulses, showing a large wave (a') due to an extrasystole of the auricle.

that of an extrasystole of an auricular origin. Here we see an extra auricular contraction or double "a" wave. In Figure 2 there is no reduplication of the auricular wave, though in this case, as before the "a" wave is somewhat increased. The radial tracing shows a distinct

meter by Einthoven in 1903 and its subsequent development as the electrocardiograph, we have an instrument that is rapidly supplanting the polygraph of Mackenzie. We are now able to differentiate the origin of the extrasystole not only as auricular, nodal and ven-

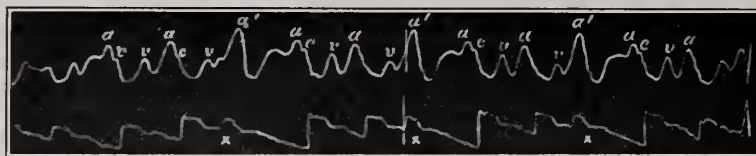


Fig. 2.—From Mackenzie. Extrasystole of a ventricular type. It will be noted that the extrasystoles (x) are followed by a long pause.

reduplication. Accordingly, we must consider that, whereas in Figure 1 the extrasystole is distinctly of an auricular origin, that in Figure 2, in showing no reduplication of the auricular wave, but one in the radial tracing only, must be of a purely ventricular origin. To

tricular, but even to tell from which ventricle the impulse starts. Perhaps it will be well to remember that the auricular and ventricular systoles are not simultaneous or continuous, as was formerly taught, and that there are four chambers in the heart. By some it is

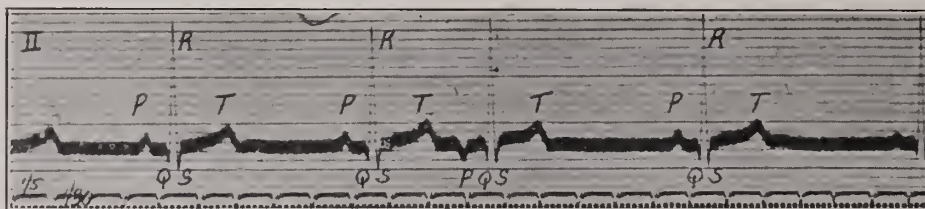


Fig. 3.—From Lewis. A clinical electrocardiogram, showing a normal heart rhythm disturbed by a premature beat. The third beat presents a ventricular complex of normal outline; it has arisen therefore in a supraventricular focus. It is preceded by an auricular complex which is inverted, showing that the wave has coursed abnormally in the auricle and that the premature impulse arose in an abnormal auricular focus. Time in fifths and thirtieths of a second.

quote Mackenzie: "The auricular extrasystole is recognized by the auricular contractions occurring prematurely, the nodal extrasystole by the simultaneous and premature contraction of auricle and ventricle, and the ventricular

even taught there is a possibility that the auricular complex, or P wave, is a combination of two beats; this, however, is pure speculation. In the frog, however, as in all animals with but a single ventricle, there is an



absence of the first descending ramus, or Q wave, of the ventricular contraction. If, however, two frogs are placed in series, there immediately results a difference in the electrocardiographic tracing (Samojloff). So that it is distinctly true that the QRS or ventricular complex is a combination of the beats of the two ventricles. It is by this means that we are able to differentiate a preponderance

from a case referred to me by Dr. W. B. Martin, we have an interpolated extrasystole arising from the left ventricle (the second QRS), which is placed between two normal beats, the entire cycle being slightly prolonged. Next follows a normal cycle; then another extrasystole, arising from the left ventricle, with a compensatory pause, the sum of the cycle of this extrasystole and the diastole following

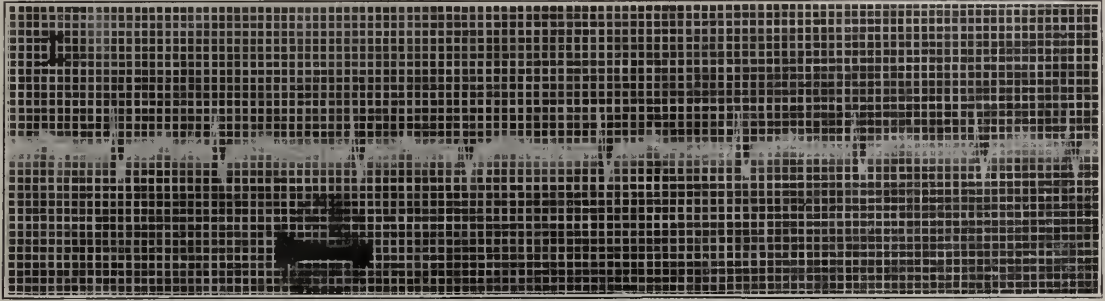


Fig. 4.—Extrasystole of an auricular origin. Note the irregularity in length of the cycles. Time in fifths and twenty-fifths of a second.

of either ventricle, to obtain the electrical axis and definitely to locate the ventricular extrasystole of a right or left ventricular origin.

Figure 3, which I have reproduced from Lewis, shows an extrasystole arising in the vicinity of the sino-auricular node, that is, an extrasystole of an auricular origin. It will be noticed in this case that the diastole following the second normal beat is greatly short-

being equal to two normal beats. In Figure 6, a case sent me by Dr. M. S. Fitchett, we have the extrasystole of a functional nodal type or one arising from an impulse at the auriculo-ventricular node. It will be noted that the auricular complex, or P, falls just after the completion of the QRS and just before the beginning of the T wave. These extrasystoles, it will be noted, arise from the

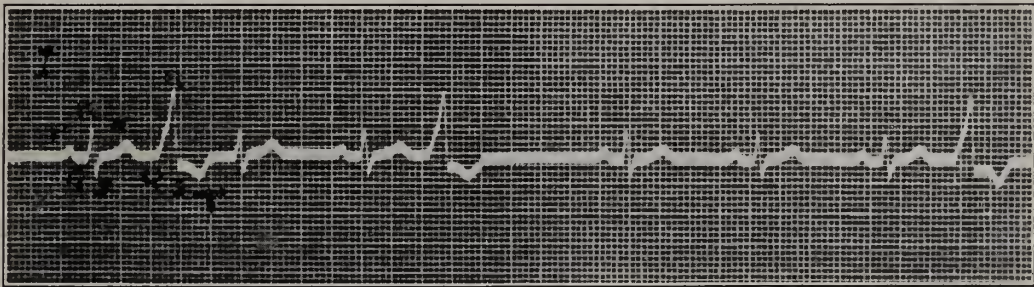


Fig. 5.—Interpolated extrasystole arising from the left ventricle (2nd. QRS), followed by a normal beat, in turn followed by another extrasystole with a compensatory pause. Time in fifths and twenty-fifths of a second.

ened, so much so that the auricular complex, or P wave, follows closely upon the ventricular rebound, or T wave, and, consequently, that this cycle is much shorter than the previous one. Figure 4, from a case referred to me by Dr. H. S. Baker, also shows extrasystoles from an auricular origin. It is this type of case that is liable to be confused with a sinus arrhythmia. In Figure 5, which I have taken

right ventricle; again we have the compensatory pause. In Figure 7, from a case referred to me by Dr. W. B. Martin, it will be noted that the extrasystole arises, as before, from the right ventricle, but that the auricular complex falls upon the ascending portion of the T wave, another case of functional extrasystole, with a compensatory pause as before. In Figure 8, which is taken from the same case

as that from which Figure 5 was taken, an interpolated extrasystole (right ventricle) is shown and also one of the usual type. Figure 9, a case referred to me by Dr. H. S. Baker, is most interesting. It shows extrasystoles of a right ventricular origin occurring in a case of auricular fibrillation with a left ventricular preponderance. The auricular beat was 230; the ventricular, 120.

The discovery of the genetic system of the heart by Tawara in 1905, the clinical observa-

potassium salts, barium chloride and aconitine, will, likewise, reproduce them. If the doctrine of modern science holds in medicine as well as elsewhere that there is no effect without a cause and, conversely, that like causes produce like effects and also that like effects are usually produced by like causes, it is easy to reason that the extrasystole in most cases is the result of an irritation of the cardiac muscle and that a damaged myocardium plays no role in the resulting phenomena.

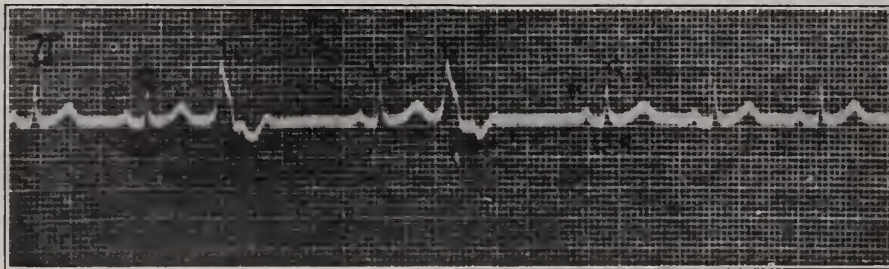


Fig. 6.—Junctional extrasystole of right ventricular origin. Time in fifths and twenty-fifths of a second.

tions of Mackenzie and the laboratory researches of Lewis and others have shown most convincingly that the extrasystole is not due to any pathological state of the myocardium. The bug-bear of myocardial degeneration as a cause for extrasystole can, therefore, be eliminated. Lewis and his co-workers, as well as many other physiological researchers, have shown that a mechanical, thermal or electrical stimulation of the heart muscle will induce an

It is usually pointed out that one of the early signs of infectious disease, particularly typhoid fever, is a certain dirotism of the pulse. It is agreed by all writers upon cardiology and clinical observers that a stimulation by certain drugs will produce extrasystoles. Even Mackenzie admits a predisposition to extrasystoles from "some digestive disturbance, or such articles as tobacco, tea or coffee." Some suggest the influence of focal infection.

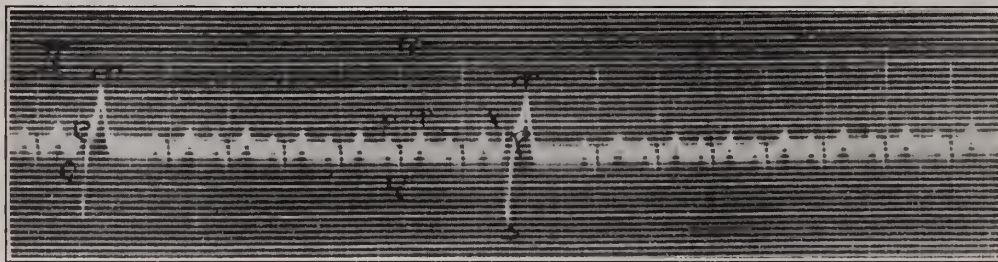


Fig. 7.—Junctional extrasystole of right ventricular origin. P falls upon ascending limb of T wave.

abnormal contraction or extrasystole. It is this very work that allows us, as we have shown above, to tell definitely from what point the extrasystole arises. Lewis, indeed, has demonstrated different curves according to the points selected in the same ventricle. It is also shown that certain drugs, such as chloroform, digitalis and drugs of the digitalis group, such as strophanthus, nicotine,

All agree that the first step in the treatment of the extrasystole is the withdrawal of the offending drug or stimulus. Now, as mechanical stimulus of the heart muscle is almost impossible in the ordinary living human being, we are limited to such stimuli as thermic changes, drugs and poisons. Some believe that psychic and nervous influences play an important part, but, again to quote Roth, "it is ques-



tionable whether nervous impulses can ever induce them (extrasystoles) in a perfectly healthy organ." To sum up, therefore, it is my own conclusion that in the human being the extrasystole results from a thermic, toxic or drug stimulation of the muscles of the heart. This is brought about by the direct contact of the blood with the nervous structures of the ventricles and in case of the extrasystoles aris-

come a sort of sinus arrhythmia. If too fast a rhythm is developed, vagal stimulation will retard it; similarly, a drug acting upon the sympathetic system or one inhibiting the vagus, such as atropine, will increase the rate. If, therefore, I may take exception to the statement made by a great majority of the writers upon cardiology that it is of no clinical import as to where the extrasystole arises, I

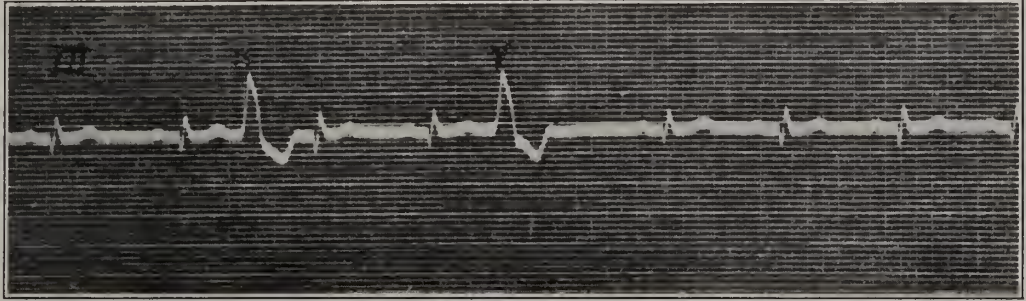


Fig. 8.—Interpolated extrasystole of right ventricular origin (x) and one of the usual type (y). Time in fifths and fiftieths of a second.

ing from the auricle or auriculo-ventricular node by the blood in the coronary vessels.

To refer to the assumption that neurotic influences play a part in the production of the extrasystole: it is my belief that we should definitely determine the source of the extrasystole. If the extrasystole is of a right or left ventricular origin, it is only by the wildest stretch of the imagination that a neurotic or psychic cause can be assigned to it. If, on

would proclaim that the extrasystole arising from the sino-auricular node or pacemaker may be of a neurotic or psychic origin, but that arising from the auricular-ventricular node or in either ventricle is decidedly pathological.

It will sometimes happen that the electrocardiographic tracing will show extrasystoles arising from more than one source. Examples are found, in which extrasystoles arise from

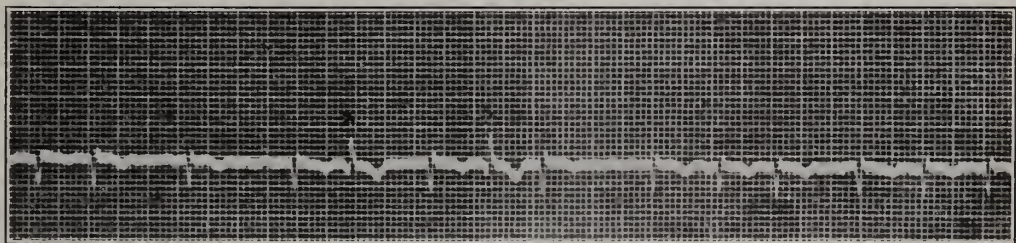


Fig. 9.—Extrasystoles of right ventricular origin (x) occurring in a case of auricular fibrillation. Time in fifths and twenty-fifths of a second.

the contrary, it is definitely determined that the extrasystole arises from the sino-auricular node or pacemaker, it is easy to see that nervous and psychic impulses might be the cause. It has been definitely shown, as we shall remember, that the sino-auricular node acts as a pacemaker between two powerful factors, the accelerator or sympathetic system and the retarding system or vagus. An extrasystole of sino-auricular origin would, therefore, be-

both ventricles in the same tracing. It frequently happens that extrasystoles succeed themselves; and this without regard to a pulsus bigeminus, trigeminus, etc. From these observations the question arises as to the nature of the extrasystole. To this very consideration Lewis in his book on the graphic representation of the heartbeat devotes many pages. He summarizes that either of two hypotheses will explain them. We may have the

theory of re-entry or that of parasystole. In the one the supposition is made that a circus movement can exist in the ventricles, as in the case of the auricles in auricular fibrillation; the other theory supposes that there are two distinct points of origin. Either supposition will explain the phenomena observed.

A prognosis, to be of value, must be based upon underlying pathology and clinical observation. In the case of the extrasystole, we have pointed out that extrasystoles may be functional or organic. We have further pointed out as our own conclusion that the auricular extrasystole, and especially that arising at the sino-auricular node, may be either neurotic or pathological; that that arising from the ventricle or at the auriculo-ventricular node is distinctly pathological. We have further shown that the ventricular extrasystole may be due to thermic, toxic or drug excitation. Again it may be emphasized that the extrasystole is in no sense the result of, or associated with, a damaged endocardium or myocardium. From these it is clearly evident that a pure extrasystole of itself will have no effect upon the life or period of expectancy of the individual. The extrasystole must serve as a signal for systematic and organized search and the cause, if possible, be determined. As regards the happiness of the patient much is to be said. The occasional extrasystole or continuing extrasystole is more than often the cause of "heart consciousness." From this, fortunately, no one ever dies. The patient only becomes worried about himself. Fortunately again, all writers agree that the more "heart conscious" the patient, the less the real pathology. Conversely, the more real the pathology, the less conscious the patient.

From this we would conclude that the treatment of the extrasystole resolves itself as to whether we are dealing with a functional, a neurotic or an organic condition. We shall strive as far as possible to remove the cause. We shall advise against undue exposure to heat or cold, undue amounts of hot or cold beverages and a return to the simple life. If the extrasystole be due to focal infection, we shall strive to remove the offending cause. Let us remember fully, however, that the removal of a source of focal infection will not always relieve the trouble caused by the infection; for the germs have already multiplied in the blood or other tissue. Undue excitement in some cases must be prohibited. Often slight or

moderate exercise will quicken the rate of the heartbeat and overcome the extrasystole. By some a moderate devotion to golf is recommended. At all events, it is the patient and not the disease that should be treated. For "heart consciousness," which is often distressing, quinidine in doses of two grains two or three times a day is often recommended. But, again, it must be emphasized that it is the patient who is to be treated. If the theories, which we have advanced, are true, a return to the simple life with the elimination of over-eating or too many hot or cold drinks, the elimination of such stimuli as tobacco, tea, coffee and perhaps alcohol, and the elimination of all foci of infection, should in almost all cases bring about a cure. To repeat: The treatment of extrasystoles is in almost all cases a hygienic problem. Drugs are rarely needed.

To summarize:

The extrasystole may be functional or organic.

If the extrasystole is of an auricular origin, it may be either neurotic or organic.

If the extrasystole is of a ventricular origin, it is purely organic.

The extrasystole should serve to call our attention to some form of stimulus or focal infection.

While often distressing, the extrasystole is in itself of no value in regard to the prognosis or expectancy of life.

The prognosis of the underlying cause is the prognosis of the extrasystole.

#### *Medical Arts Building.*

#### DISCUSSION.

DR. J. C. FLIPPIN, University: I was very much interested in Dr. Hunter's historical summary of our knowledge of the extrasystole and in the charts and photographs exhibited. It might not be out of place to make some remarks on the practical significance of extrasystoles. With the exception of sinus arrhythmia, which is present in a large percentage of young people, extrasystole is the most frequent of the cardiac arrhythmias. In perhaps ninety-nine cases out of one hundred it can be recognized without the aid of instruments of precision, such as the polygraph or electrocardiograph. It occurs in people without any other demonstrable cardiac lesion. It perhaps cannot be regarded as being a normal phenomenon but, in the absence of any other symptoms or signs of cardiac disease, the occurrence of extrasystoles is relatively of small importance. The onset of this form of irregularity may accompany organic heart disease and where the extrasystoles occur very frequently they probably render the heart less efficient. Extrasystoles may be noted at one period of an individual's life; they may disappear for periods of years, never to reappear or to recur later. Apparently, this irregularity may be due to any one of a number of toxic



or reflex causes. The toxæmias of the acute infectious diseases may be accompanied by extrasystoles. The over-use of tobacco or coffee will in some individuals cause such an arrhythmia. It has been my observation that the extrasystoles of the auricular type are rather more significant of organic disease than the ventricular form.

DR. A. L. TYNES, Staunton: I hesitate very much to discuss this paper, particularly in this day when medicine has been reduced to a more or less exact science and when every statement is expected to be buttressed with a series of charts, facts and figures, and laboratory findings, and I have none at hand to present to this society. I do, however, wish to refer to a remark made to me a good many years ago by Dr. Paul D. White, who was at that time only recently returned from his studies with Mackenzie and Lewis. We were discussing a patient of mine who was having cardiac distress due to extrasystoles which proved to be due to drinking coffee, and which he could control at will by giving up that beverage. Dr. White had this to say: "We do not know the cause of extrasystoles, or premature beats, in a large number of cases, but so far as we

do know they are not due to any organic disease of the heart and have no especial significance except this; it has been observed that the incidence of cardiac disease in later life is more often noted in patients who have premature beats in early life than in those who have never shown the presence of extrasystoles." Since hearing Dr. White make this statement I have had occasion to observe a number of patients who had extrasystoles during their first three or four decades, and in whom no other evidence of cardiac disease could be found, who after ten or twelve years have shown evidence of heart disease.

DR. T. DUCKETT JONES, Boston, Mass.: I have been working with Dr. White for several years, and he has made a pretty wide survey of his cases. I know that at the present time Dr. White does not feel that people with extrasystoles are necessarily more likely to develop heart disease than others. But he does find that people with auricular extrasystoles more commonly have them associated with heart disease than those with the ventricular extrasystoles. I think you will find that ventricular extrasystoles are more often found in persons who never develop heart disease, than auricular extrasystoles.

### SOME EFFECTS OF PARALYSIS OF THE DIAPHRAGM IN THE TREATMENT OF PULMONARY TUBERCULOSIS.\*

RICHARD H. MEADE, JR., M. D., University, Va.,  
By  
and

FRANK B. STAFFORD, M. D., Sanatorium, Va.

Since paralysis of the diaphragm was introduced in 1911 by Stuertz as an adjunct in

so fully that they are common knowledge. Not only have lesions of slight extent yielded to this treatment, but even well-defined cavities have been seen to collapse in a short time. The recent article of Mayer and Leetch in the *Journal of the American Medical Association* gave striking examples of this latter change.

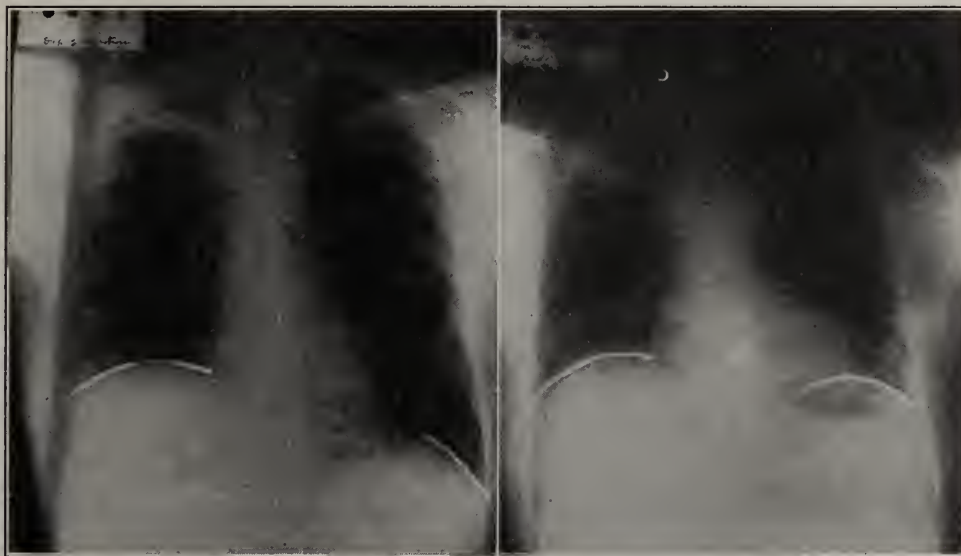


Fig. 1.—Roentgenograms of chest of L. H. The one on the left was taken on full inspiration, the one on the right on forced expiration. The right diaphragm has been paralyzed and does not change its position. The movement of the left is normal.

N. B. Diaphragm has been outlined with ink.

the treatment of pulmonary tuberculosis, a very extensive literature has developed. The good results accomplished have been reported

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Read at sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

However, it is not the purpose of this paper to review the literature nor to report personal experiences, but to emphasize by specific illustrations some of the ways in which diaphragmatic paralysis accomplishes its results.

The first effect of paralysis of the diaphragm is loss of motion. This may be complete and the diaphragm become fixed in one position,

movement of the normal left side is in sharp contrast to the fixation of the paralyzed right side. It is obvious that such a condition must

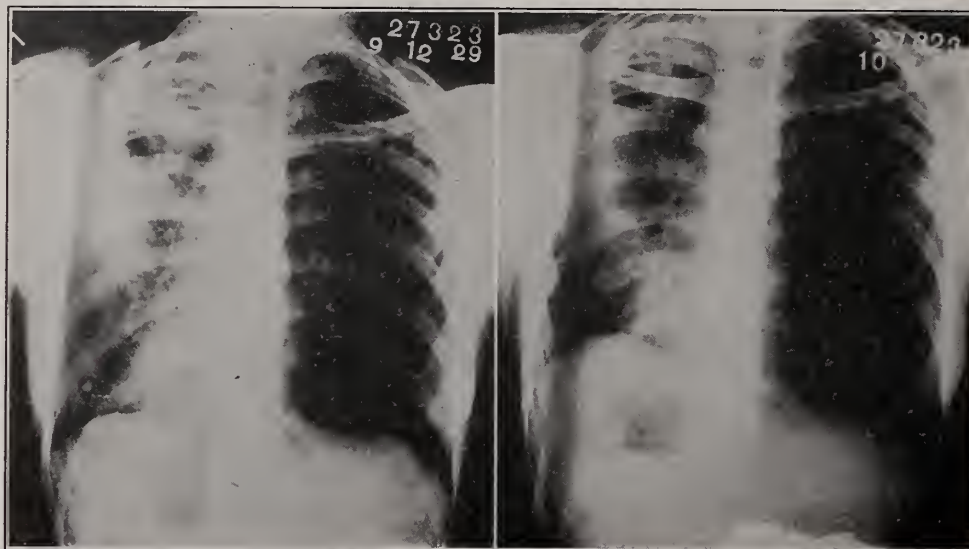


Fig. 2.—Roentgenograms of chest of Mrs. S. The one on the left was taken before paralysis of the left diaphragm. A cavity can be seen just below the left clavicle. The picture on the right shows the elevation of the right diaphragm after its paralysis and an upward displacement of the cavity.

but more frequently a slight paradoxical movement persists. In this latter state the diaphragm becomes slightly elevated on inspiration and slightly depressed on expiration. The

aid in rest of the corresponding lung.—Figure 1.

Another striking effect of paralysis of the diaphragm is the elevation that results and

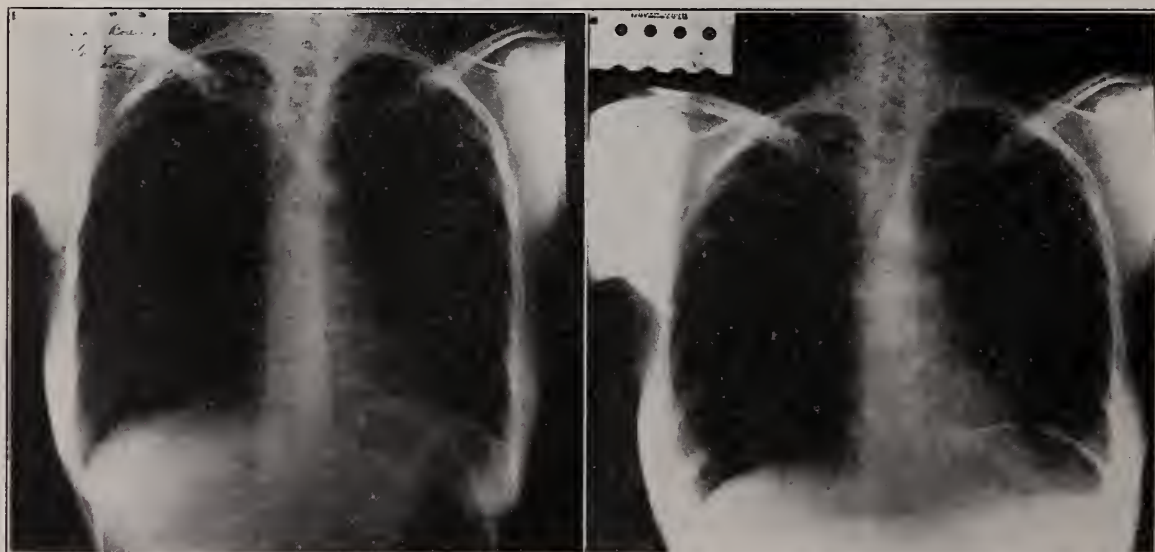


Fig. 3.—Roentgenograms of chest of Mrs. R. Taken before and after paralysis of the left diaphragm. The relaxation and elevation of this structure has done away with the pull on the adhesions between it and the lung.

first effect is well shown in the present case in which roentgenograms of the lungs in full inspiration and expiration are shown. The

which decreases the capacity of the homolateral pleural cavity from 400 to 800 c.c., thus raising slightly the intrapleural pressure and



causing a definite relaxation of the lung. This elevation of the diaphragm is evident in the roentgenograms of Mrs. S., showing the level of this structure before and after paralysis.

in the first film is seen to be just behind it following paralysis of the diaphragm.—Figure 2.

The nagging pain in the neck and shoulder, resulting from diaphragmatic irritation due

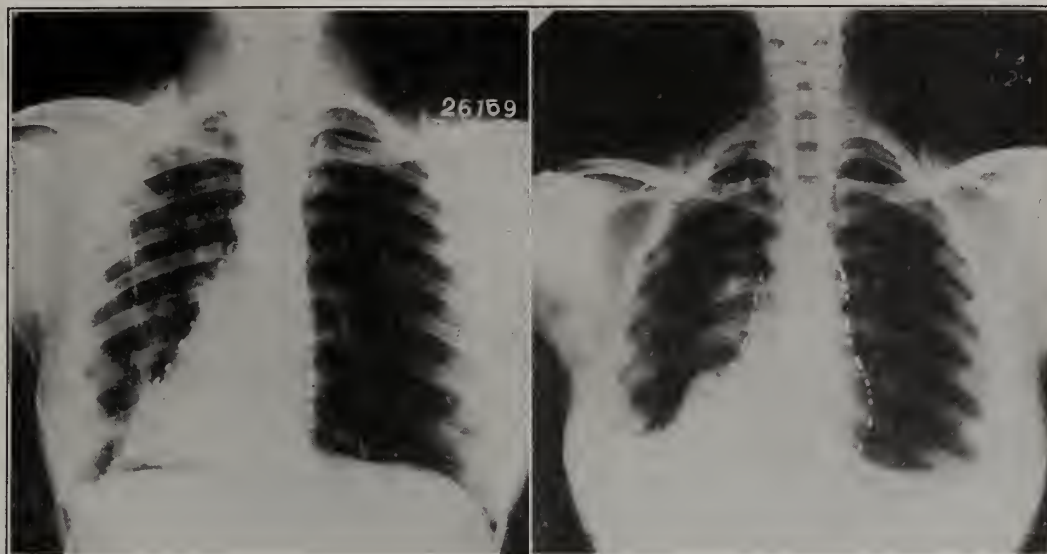


Fig. 4.—Roentgenograms of chest of F. B. The one on the left shows the condition of the left lung and heart following the induction of a partial pneumothorax. Adhesions between the pericardium, the lung and the diaphragm interfere with proper compression of the lung and keep the heart displaced to the left. The roentgenogram on the right was taken after paralysis of the diaphragm and before any more air was introduced.

N. B. Left border of lung is outlined by a continuous line, the heart shadow by dotted lines.

That the elevation of the diaphragm can influence the entire lung, even in the presence of adhesions, is apparent in these films. The cavity which is seen well below the left clavicle

to the pull on adhesions between the lung and this muscle, is worthy of attack. And, as would be expected, relaxation of these bands by paralysis of the diaphragm at once relieves

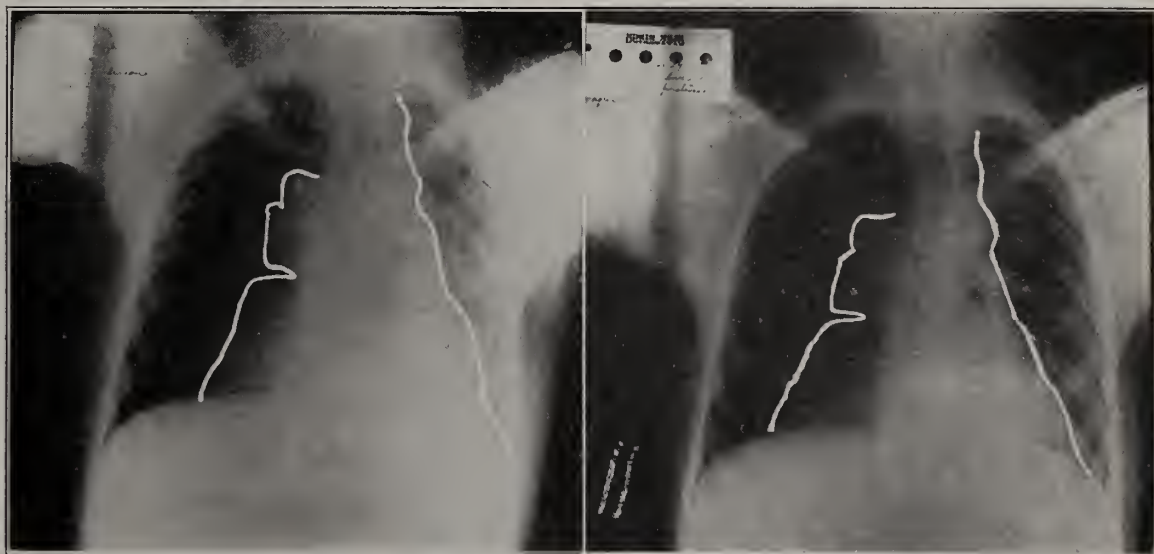


Fig. 5.—Roentgenograms of chest of W. A. on forced expiration. The right lung has been compressed by an induced pneumothorax. The roentgenogram on the right was taken after paralysis of the right diaphragm. Shifting of the mediastinum to the left is less marked. The intrapleural pressure was the same in each instance.

N. B. Right lung and left border of mediastinum and heart outlined with ink.

the pain. In the case of Mrs. R., here presented, this referred pain was an annoying symptom. Roentgenograms showed a definite tenting of her diaphragm with evidence of an adhesion between this muscle and her lung. Following paralysis of the diaphragm, relaxation occurred and the pain disappeared.—Figure 3.

Adhesions notoriously interfere with the pro-

after avulsing his phrenic nerve. As the maximum degree of mediastinal movement was noted on expiration, this is the state of the lungs in these films. The intrapleural pressure was the same in each instance.—Figure 5.

It has also been observed that the less diseased, or normal, portion of the collapsed lung moves quite markedly on respiration. In the roentgenograms of Mr. A., the expansion of

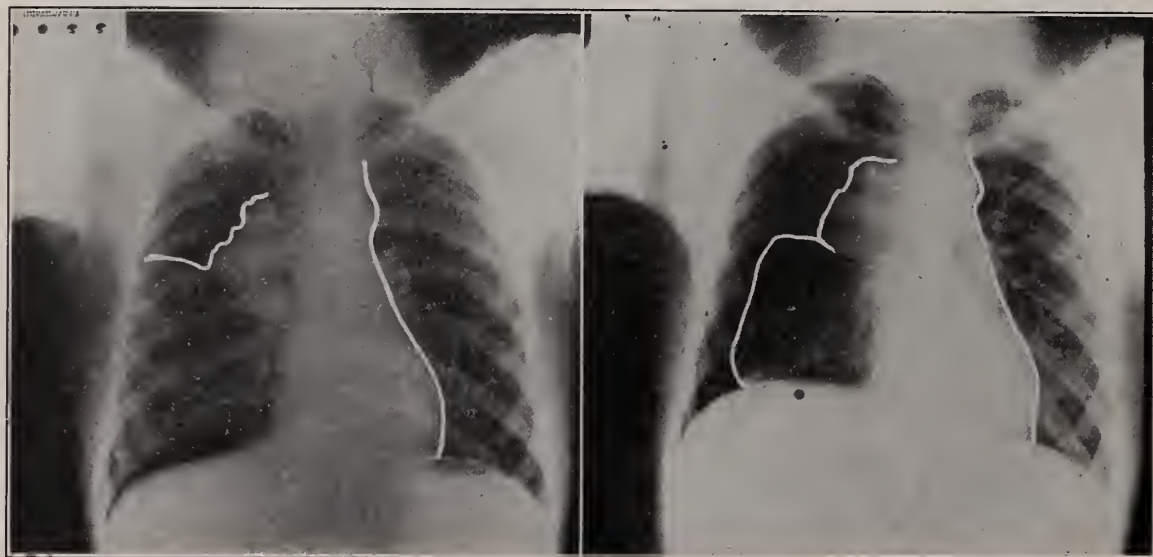


Fig. 6.—Roentgenograms of chest of W. A. on full inspiration. Before paralysis of the right diaphragm the corresponding lower lobe almost reaches the chest wall. After paralysis and without change in the intrapleural pressure this lobe is seen to be less expanded. A difference may also be noted in the upper collapsed lobe.  
N. B. Right lung and left border of mediastinum and heart outlined with ink.

duction of a satisfactory artificial pneumothorax. When these bands involve the diaphragm, help is obtained from paralyzing this structure. In one of our patients (F. B.) this was found to be true, and, as shown in her roentgenograms, a decidedly better collapse developed as soon as this procedure was completed.—Figure 4.

In pneumothorax cases in which adhesions are absent, but in which satisfactory collapse of the lung cannot be secured because of the extreme mobility of the mediastinum, fixation of the diaphragm seems to play a helpful role. As we have just begun the study of this aspect of the pneumothorax problem, our results cannot be considered final. However, in several cases under observation there has been noticed a slight, but definite, decrease in the mobility of the mediastinum and a correspondingly better collapse of the lung following paralysis of the diaphragm. This effect is seen in the roentgenograms of Mr. A., taken before and

the lower lobe on inspiration is well shown. It would seem that such movements must cause tugging on the diseased portion and thus interfere with its maximum rest. Indeed, in this same roentgenogram this fact can be noted. Furthermore, the adjacent lung tissue is seldom entirely free from involvement and, therefore, should also be kept quiet. The lessening of the movements of this part of the lung after paralysis of the diaphragm is also apparent in these roentgenograms of Mr. A. Great care was taken to have the intrapleural pressure as nearly equal as possible when the pictures were taken, before and after operation.—Figure 6.

#### SUMMARY.

The principal effects of paralysis of the diaphragm in the treatment of pulmonary tuberculosis, as illustrated in this paper, are:

1. Loss of motion of the diaphragm.
2. Elevation of the diaphragm.



3. Relaxation of adhesions between the diaphragm and lung.

4. Increased efficiency of pneumothorax by aiding in immobilization of the mediastinum and in decreasing movements of the compressed lung.

#### DISCUSSION.

DR. J. B. NICHOLLS, Catawba Sanatorium: In short, the main use and purpose of artificial pneumothorax is to put the diseased lung at rest. From the X-ray films of pneumothorax cases you will sometimes get a false impression and it will appear, if you do not think about it, that the lung is absolutely at rest and that there is no movement. But it is astonishing at times to see under the fluoroscope how much movement an apparently completely collapsed lung has, and I think the means which Dr. Meade has brought out is going to be of great aid in its use along with the artificial pneumothorax.

DR. FRANK B. STAFFORD, closing the discussion: The main factor we are trying to emphasize in this paper is rest. Dr. Wright has gone over very carefully in his paper the necessity of rest. The operation for paralysis of the diaphragm is solely for the purpose of resting the diseased lung more, and anything that will accomplish this is helpful. This operation is very simple as compared to a surgical collapse, is safer, and is certainly of much benefit. Primarily, this work was started by us as an aid to pneumothorax; but we have found, as Dr. Meade has pointed out, that other cases in which pneumothorax treatment could not be given because of pleural adhesions can, by paralysis of the diaphragm, be restored to a life of usefulness more quickly. Any measure that will aid in giving rest in cases of pulmonary tuberculosis is of value.

### ABDOMINAL MANIFESTATIONS OF TETANY.\*

By WM. H. HIGGINS, M. D., Richmond, Va.

From Medical Department of St. Elizabeth's Hospital.

Tetany may be described as a condition of localized hypertonicity and characterized by intermittent spasms of certain groups of muscles without loss of consciousness.

It can scarcely be regarded as a distinct disease but rather as a syndrome of disturbed function occurring under a variety of circumstances. The fact that there are a dozen or more types of tetany described in the current literature is sufficient evidence that the underlying cause is not clearly understood. This state of uncertainty is in spite of an enormous amount of experimental work which has been in progress for a number of years.

In order to present intelligently certain phases of this subject, it is necessary to refer briefly to some of the known facts concerning the pathogenesis of tetany. Today there

are three main hypotheses, none of which entirely satisfies the varied manifestations of the diseased entity. They may be spoken of as the endocrine theory, the calcium privation theory and the theory of toxic origin.

The endocrine theory, as exemplified by the term tetania parathyreopriva, has been recognized for many years. The earlier thyroid surgeons were familiar with the train of convulsive symptoms which followed complete removal of goitre although they did not appreciate its significance. The striking similarity of the various tetanias to this type following removal of the parathyroids tempted many to seek a common pathogenesis in the deficient glandular secretion. This hypothesis, however, as a sole factor has been largely discarded because of negative histologic findings in the great majority of necropsies on cases of tetany, as well as the frequent presence of glandular changes in patients dying from other causes without any history of tetany. On the other hand, there is sufficient experimental evidence for believing that the parathyroid glands are intimately connected in some metabolic way with the production of the typical attacks.

The theory of toxic origin is a broad one and includes not only the influence of certain metabolic derivatives but also infectious processes of unknown sources. The nature of the acid base upset in tetany is controversial as both acidosis and alkalosis have been observed. Wilson, Stearns and Thurlow stated that there is created during an attack a condition of alkalosis which is rapidly followed by acidosis. Critchley has shown that nitrogen metabolism is seriously involved, giving rise to an increased excretion of nitrogen and creatinin as well as the appearance in the blood stream of highly toxic bodies, notably methylguanidine and guanidine. When the latter is injected experimentally, symptoms indistinguishable from parathyroid tetany are produced. Strangely enough, guanidine tetany is relieved by calcium. Based on these observations, Paton and Findlay assumed that the function of the parathyroids lay in the guanidine metabolism and the control of muscle tonus. Under this theory the role of the calcium reserve was to render toxins innocuous either by direct combination or by decreasing the permeability of the tissue cells. This theory, however, does not explain the changes in the acid base equilibrium in tetany nor the

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rapid production of tetany by over-ventilation of the lungs.

The calcium privation theory formulated by MacCallum and Voegtlin in 1908 has received the widest recognition up to the present time. It was assumed that since convulsive seizures like those of tetany could be produced by deficiency of calcium in the body, and, furthermore, that the symptoms of parathyroidectomy could be relieved by the administration of this mineral, calcium deficiency was the cause of the disease. The defective calcification of the bones and teeth following parathyroid deprivation and the frequency of tetany occurring during pregnancy and prolonged lactation lend weight to such an hypothesis. The strongest advocates of this theory are Howland and Marriott, who maintain that when the blood calcium falls from a normal of 10 mg. to 5 mg. per 100 c.c., tetany develops regardless of other conditions. These observations are highly suggestive, but a number of facts may be cited to render this theory as a sole cause of tetany untenable. Thus, in cases of rapidly produced experimental tetany, such as gastric tetany following ligature of the pylorus, there is no reduction of the blood calcium. MacCallum has shown that when the pylorus is obstructed and the gastric juice is constantly removed by lavage there ensues a plasma chloride deficiency and the animals rapidly develop tetanic convulsions. Calcium injections are not effective, but saline transfusions cause a prompt disappearance of the symptoms. In other diseases, such as diabetes, the calcium level may fall considerably without tetany resulting. Finally, may not the low calcium figure be the result rather than the cause of tetany? Although the evidence in favor of the calcium theory is striking, the most probable explanation of the beneficial effect of calcium on the nervous system is that it behaves chiefly as a sedative, reducing the excitability of the nervous system—an action which it is known to possess.

A symptom common to all types of tetany, regardless of its cause, is a spasm localized in certain groups of muscles. It is conceivable that these contractions are nature's method of developing a large amount of lactic acid rapidly in order to neutralize an excessive alkalosis, but no satisfactory explanation of the selective involvement has been offered. A physiologic corollary may be considered in this connection.

Small muscles are under normal conditions in a higher tonic state than the larger groups and contain a relatively greater amount of glycogen. When some systemic intoxication develops, it is possible that these more highly sensitized muscles will respond more promptly, thereby tending to restore a balance of the acid-alkali ratio. Upon this basis we may assume that the sensitive and highly developed muscles of the face, hands and feet are more susceptible to stimulation and hence are commonly involved in the majority of cases of tetany.

There is another group of cases, however, which, for want of a better term, may be classified as visceral tetany. Abdominal pain is an outstanding symptom and of greater magnitude than the accompanying spasm of the hands and feet. In this type of tetany there are intermittent painful spasms of a colicky character which may simulate many of the inflammatory conditions in the abdomen. Langenskiöld has reported six cases, Kaufman one, and the writer has seen four instances of this type. Doubtless many others have made similar observations but they have not been recorded in medical literature. In the cases reported by these authors no corroborative roetgen ray studies were made.

The first case of the writer's series was originally diagnosed intestinal obstruction, but with the appearance of a spastic involvement of the hands and feet a true gastric tetany was recognized, which at operation was found to be due to a benign pyloric occlusion. The second case occurred in a pregnant woman who, in addition to the obstetrical hand and carpopedal spasm, had intermittent painful abdominal contractions which were relieved by calcium therapy. The third case was a young man who complained of recurring abdominal pain, numbness and spasms of the extremities. Physical and laboratory examinations, including X-ray studies of his gastro-intestinal tract, were negative. The administration of Collip's parathyroid caused prompt disappearance of his symptoms.

The fourth case was of unusual interest and, on account of certain unique features, is reported in detail:

A white woman, age 26, entered St. Elizabeth's Hospital with a diagnosis of intestinal obstruction. She was the mother of an infant whom she has been nursing for one year. Her



symptoms began about five months before admission and consisted of a sensation of tightness in the lower chest. Later she began having cramp-like pains in the epigastrium about one hour after meals and during the night. Associated with these symptoms were twitching of the face, numbness of the arms with flexion at the elbows and adductor spasm of the thumbs. These contractions would last for an hour or more at a time. She has lost twenty-five pounds and has grown progressively weaker and more nervous.

The physical and laboratory examinations were not conclusive, but were strongly indicative of tetany with visceral manifestations. The roentgen ray report of her gastro-intestinal tract by Dr. F. M. Hodges gave the following information:

"Plate over the abdomen negative.



Fig. 1.

Fig. 2.

Fig. 1.—Normal contour of stomach and duodenal cap photographed during an attack of tetany (Dr. F. M. Hodges).

Fig. 2.—A 6-hour examination. The stomach is empty but none of the material has reached the large bowel. There is some barium in the terminal ileum, but there is also a considerable amount in the upper left side of abdomen in the small bowel at this point (Dr. F. M. Hodges).

"Oesophagus, stomach and duodenum negative. Six hour examination—the stomach was empty but none of the material had reached the large bowel. There was some material in the terminal ileum but there was also a considerable amount in the upper left side of the abdomen in the small bowel at this point. At the end of 12 hours, the meal had progressed only to the cecum. The cecum is low down in the pelvis and very much enlarged. A barium enema showed a normal colon." (Figs. 1, 2, 3, and 4).

These observations were made during one of the attacks, as described above. On account

of the clinical evidences of tetany, a second roentgenological study of the gastro-intestinal tract was made by Dr. Hodges during a quiescence of the symptoms on the following day. It showed "no delay in the progress of the barium and none of the striking features noted in the previous examination were present."

In view of these findings, a tentative diagnosis of visceral tetany was made. On account, however, of the severity of the cramps and the possibility of some associated surgical lesion, an emergency laparotomy was performed by Dr. J. S. Horsley. The stomach and duodenum appeared normal but the gall-bladder was small, thickened and contained stones. The small intestine was explored throughout. *About the middle of the small bowel there was a very marked peristaltic contraction which reduced the intestine to the size of a pencil for a distance of about two or three feet. Above this area the spasm was strong but not so marked.*

The appendix was removed and was found to be six c.m. long and slightly adherent. The mucosa appeared normal except at the tip where there was a stricture. The gall-bladder measured nine by three c.m. There was evidence of many adhesions and the wall was greatly thickened, and there were six gall-stones about 1/3 c.m. in diameter. On section the walls showed some areas of sub-acute inflammation.

In brief, here is the record of a lactating mother with clinical evidences of tetany and intermittent attacks of severe abdominal pain. Roentgen-ray examinations during an attack revealed a spasm of sufficient severity in the small intestine to cause a partial obstruction. Subsequently, during a quiescent period, a second barium meal was given which showed a normal progress. At operation a very much thickened gall-bladder with stones was found together with a most remarkable spastic condition of the small intestine. Following the operation, the patient had several attacks similar to those described in her pre-operative history, but since the administration of calcium there has been no recurrence now for more than a year.

The chief interest in this particular case lies in the significance of the abdominal pain. Colicky pains in the upper abdomen recurring in intermittent attacks are notoriously indicative of gall-bladder disease and, when stones

are actually found at operation, it would seem to be sufficient evidence to establish an unmistakable diagnosis. Yet there are certain other factors which would appear to offer a somewhat different etiological basis for the abdominal symptoms.

We are in the habit of thinking of abdominal pain or spasm as a purely local manifestation. Its frequent occurrence in local conditions, such as trauma, inflammatory processes, neoplasms, etc., are generally and satisfactorily explained on the basis of an autonomic activity of the ganglia implanted in the digestive tube. Following Mackenzie's classic monograph on "Symptoms and their Interpretation," we have gone a step further and have learned that spasms in parts distant from the lesion may be produced reflexly through the vegetative nerves, an experimental observation which has now become an established fact. We also recognize that reflex spasms may originate from organic lesions outside the alimentary canal, such as diseases of the central nervous system, pelvis and other organs.

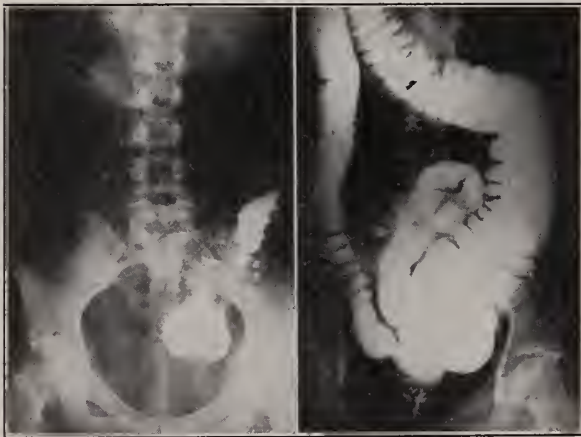


Fig. 3.

Fig. 4.

Fig. 3.—At the end of 12 hours, the meal has progressed only to the cecum. The cecum is low down in the pelvis and very much enlarged (Dr. F. M. Hodges).

Fig. 4.—Normal colon as shown by a barium enema (Dr. F. M. Hodges).

Aside from these well known considerations of abdominal pain, we are confronted with other types which may be termed systemic in origin. We are familiar with gastro-spasms or entero-spasms as a part of a functional neurosis and also with the painful board-like abdominal rigidity arising from infections with *B. Tetani*, strychnine poisoning, etc., but metabolic disturbances, such as tetany, are not usually included among the causative factors

in abdominal pain. It has been assumed that when abdominal pain has coexisted with other evidences of tetany a visceral spasm has taken place, but no tangible proof of this condition, or the location of the contraction, has been previously demonstrated.

In the case under discussion we were particularly fortunate in having roentgen studies made during the attack, which showed an actual obstruction of the barium meal in the small intestine. As demonstrated by a subsequent roentgen examination, this obstruction was of a spastic type, and not of an organic nature, recurring as a part of the clinical picture of a generalized tetany.

The question naturally arises as to the probable role of the cholelithiasis and cholecystitis in the production of the abdominal symptoms. If our first premise, as stated in an earlier paragraph, is correct, namely, that muscles of a higher tonus are most likely involved in tetany, a plausible explanation of the involvement of the abdominal viscera may be found. Following Mackenzie's studies, we know that when there is an exalted visceromotor reflex as brought about by localized inflammatory lesions, the muscles supplied by this irritable focus in the cord maintain a higher tonic, and are, therefore, more susceptible to any chemical or metabolic changes which may occur in the human mechanism. Upon this basis we may presume that those cases of tetany which manifest abdominal symptoms may do so because of some associated focus sufficient to lower the threshold of stimulation. In view of the fact that the attacks continued after the removal of the gall-bladder, but disappeared following the institution of tetany therapy, it would appear that the cholelithiasis was only a secondary factor in the production of symptoms.

#### SUMMARY

A record of the clinical history and roentgen findings of a patient suffering with visceral tetany is given. Pictures were taken during an attack which showed an obliterative spasm of the small intestine, but were normal when repeated during a quiescent period. At operation the ileum for a distance of more than 50 c.m. was found contracted to the size of a lead-pencil with no evidence of any organic changes. A cause of abdominal pain in tetany is thus demonstrated.



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*Medical Arts Building.*

## DISCUSSION.\*

DR. JULIAN M. ROBINSON, Danville: You have just heard a rather unusual subject handled in a way which was not only interesting and instructive, but which must excite your admiration for the careful and intelligent study which was necessary for the presentation of such a manuscript.

The essayist has gone to the bottom and brought this question out of the darkness and placed it before you, both by word and picture, in such a clear and convincing manner that the cobwebs, so to speak, have been brushed away.

The literature upon the subject of abdominal tetany abounds with theories but the paucity of cases reported has served to emphasize not the fact that there has been a scarcity of this condition but rather a failure to place upon the symptom complex its true significance. We have been too prone in the face of abdominal pain to ascribe it to the more usual causes, disregarding, perhaps, the associated symptoms, and center our attack upon an inoffensive gall-bladder, a much maligned stomach or an appendix curled up innocently in its rightful bed.

Do not forget the two chief points which the author has emphasized in his paper, namely, might not the lowered calcium content be the result rather than a cause, and the relief obtained by its exhibition be due to the lessened nervous excitability, an action, as he states, it is known to possess?

His second point is that abdominal pain can arise from visceral tetany and the cause of this pain may be due to an actual spasm of the small intestine itself.

In a series of experiments conducted in 1909, in Baltimore, and further pursued in 1917, in New York, by MacCallum and others, and reported in the *Johns Hopkins Hospital Bulletin*, Vol. XXXI, No. 347, the question of pyloric obstruction in relation to gastric tetany was thoroughly gone into and certain conclusions arrived at, but, though they gave clear evidence that a certain chain of events followed such an obstruction, they did not necessarily give an explanation of gastric tetany in the human being.

It has been observed that when the pylorus was completely obstructed and the stomach frequently washed out, an animal wasted rapidly and died in a few days, usually with violent convulsions which were not precisely of the same nature as the twitchings seen in parathyroid tetany.

The muscular rigidity with vibrating clonic twitchings and extreme tachypnoea were lacking. Instead, the rather apathetic animal usually lies

quiet until seized with a violent universal convulsion, which throws the body into extreme and rigid opisthotonos with abundant salivation and attempts at vomiting. After this it sinks into a kind of coma with slow deep respirations.

Without going into the more technical details of these experiments with the numerous chemical changes, let me present the conclusion, namely:

When the pylorus is obstructed and the gastric juice with its hydrochloric acid is constantly removed, there ensues a decrease in the chlorine of the plasma. There is a consequent increase in the alkali reserve which becomes extreme

The electrical excitability of the nerves is in general heightened, and there are spontaneous twitchings and in most cases violent convulsions, which lead to death.

All of this can be prevented by constantly furnishing a large supply of chlorides.

The convulsive movements are not exactly like the twitchings of the tetany of parathyroidectomy, in which no heightened alkali reserve was found, but they can be produced by the injection of sodium carbonate or bicarbonate.

Let me present briefly a case which I was fortunate enough to see recently which is analogous to the case presented in detail by the author and which bears out his contention.

Female, teacher, age 27. Had been treated by a neurologist in Chicago, a chiropractor in Kansas City, as osteopathist in Scranton, Penn., and a homeopathist in Philadelphia, and was still able to walk erect and recite her encounters.

Her symptoms began about two years ago, when she noticed that after eating she experienced a feeling of nervous apprehension which seemed to emanate from the pit of her stomach.

This became so annoying that she gave up her work for three months and rested, during which time she was almost entirely relieved. On resuming her work, however, the symptoms returned and gradually became more frequent and more pronounced until it developed into cramping pains in her stomach, coming on in the beginning shortly after the ingestion of food.

Later on she began having them during the night, and would awaker to find her left hand clinched and left forearm rigidly flexed, with some twitchings about the facial muscles and stiffness in the lower left leg.

I first saw her in my office Octobeth 5th, and ordered her to the hospital the following day for examination and observation.

She had one of these attacks during the night but it had passed off before she entered the hospital the following morning.

Gastro-intestinal pictures were made and the report was in substance, gastropnoia, enteropnoia, cecal stasis and a marked distention of the ileac portion of the small intestine.

The diagnosis was chronic appendicitis with intestinal tetany. She was operated on October 18th last, and a chronic adherent appendix was found with adhesions covering the head of the cecum. The most interesting condition, however, was the appearance of the ileum. For a distance of ten or twelve inches from its junction with the large bowel it was collapsed and had a lifeless grayish look, and was about one-third of its normal calibre, while the small intestine just proximal to this section was markedly distended.

The appendix was removed, the cecum mobilized and the collapsed portion of the intestine ironed out.

\*Prepared in advance of meeting and presented with paper for publication.

In the interim between her admission to the hospital and her operation, she was given calcium chloride 15½ grs. intravenously every other day for four treatments. No other medication was given in an effort to determine just how her nervous symptoms would respond to this.

Her high nervous tension disappeared almost over night and she became more composed, more relaxed, more normal and more like herself than she had since the inception of the trouble.

The diagnosis and handling of this case was influenced no little by the paper you have just heard, to which I had access at that time. I am much indebted, as I know you are, to the essayist for the presentation of this subject in such a light. I trust we will be favored with a further and fuller report by him as he pursues his observations along this line.

### EXPERIENCE WITH OLD TYPHOID VACCINE IN THE TREATMENT OF FOCAL INFECTIONS.\*

By CLARENCE PORTER JONES, M. D., F. A. C. S.,  
Newport News, Va.

In 1914, Ludke, as we recall, used deuterioalbumose as an injection for the treatment of disease. A little later Schmidt injected cow's milk for the treatment of eye infections.

Since that time there have been over two hundred investigators and research workers who have studied the parenteral injection of albuminous substances for the treatment of eye infections. That this proved to be a highly valuable aid to therapy is borne out by a well-nigh unanimous enthusiasm on the part of these men as exhibited in their reports. From personal experience, we have found that the intramuscular injection of cow's milk, 5 to 10 c.c., in patients suffering from deep inflammations of the eye, as cyclitis, choroiditis, iritis, as well as specific ophthalmia, corneal ulcers and traumatic injuries, is of decided value. We are absolutely certain that we have saved eyes that would otherwise have been lost. Experiment has been made with other albuminous substances, as vistosan, yatren, caseosan, novoprotein, lecithin, etc. We seem to find that in each instance the investigator either said flatly, or intimated that none of these had any value which cow's milk did not have.

Now, how does this substance act—the injection of cow's milk into the muscles of the gluteal region—to cause prompt arrest of a severe ocular inflammation? Few have been bold enough to offer an opinion. Some ten or more state as a fact that there is a marked increase in the leucocytes, polymorphonuclears pre-

dominating. Franke and Loeb say that it is caused, first, by the production of fever; second, by an affinity for the spleen, bone marrow and lymph nodes; third, a focal reaction in the area of the lesion.

Weichardt and Schmidt believe it to be "protoplasm activation." Bier says "irritative therapy." The truth of the matter is, it is a subject for future biologic study.

The use of cow's milk, whether raw, pasteurized, water bath treated, or boiled, produces a violent reaction—chill, fever, and a feeling of malaise for about twenty-four hours. This extreme discomfort is about its only drawback, and for this reason it is used less often than it would otherwise be. We have often wondered why this had not been generally used for focal infection treatment in other than the eye. Why have there not been others save oculists to take up the subject of foreign protein parenteral injections? We know that each serum and vaccine contains albumen, and that albumen seems to be the base. Why, then, do not others make use of this proven remedy? We confess to the lack of courage to try it in other fields until Dr. Foy Vann, of Norfolk, informed us early in March that foreign protein therapy is valuable in treating any infective focus, especially "left over infections," as he expressed it, and that the protein which produces the least reaction, yet seems to be as valuable as any, is old, out of date typhoid vaccine. The occasion of this interview was the consultation over a young girl whom we had cured of stiffness in shoulders four years ago by tonsillectomy. About two years ago she had a stiff neck which was cured by the extraction of an abscessed tooth.

During October, 1918, the girl referred to above was ill in bed for a week from pleurisy. Upon recovery she was left with painful knees, causing severe pain on going up steps. Dr. Vann advised giving her subcutaneously typhoid vaccine, old, fifteen hundred million c.c. standard, four minims, increasing the dose one minim every third day as long as necessary, using judgment as to how much the increase should be. We did not give more than one c.c. at a dose. In thirty days she was perfectly well, and is so at this time.

There also appeared another patient who had consulted Dr. Vann, a lady thirty-two years old. Since July, 1924, she had had knee

\*Read by title before the sixtieth annual meeting of the Medical Society of Virginia, at Charlottesville, Va., October 22-24, 1929.



pains which were relieved by nasal sinus operations, tonsillectomy, and by the extraction of teeth. From the last treatment, i. e., the extraction of two abscessed teeth, which occurred September, 1928, she had not received full measure of relief. She suffered much at times on going upstairs, also in stooping. A thorough search with the aid of the X-ray failed to reveal any focus. Inasmuch as the first case mentioned was progressing nicely, we put her on typhoid vaccine, old, with very satisfactory results.

Encouraged by the success in these two cases, we immediately procured a large quantity of typhoid vaccine, old, and made it available to all physicians in the community. The kindness and patience of these friends in trying the remedy is the reason for these few remarks. It has been used by them in cases of left over infections, or, in other words, in those cases where there is no known existing focus, or where the focus, or foci have been removed as far as it is humanly possible to do so. The results have been quite gratifying: nearly every patient having increased a few pounds in weight. They have each experienced a feeling of well being, with relief of pain in muscles. The remedy has been proven to be of marked value in the treatment of vague muscle pains in the aged. Reactions have been very slight, in many cases not being noticeable. There was some malaise in one case, a man sixty years old. This patient avows that all vaccines and serums make him sick; therefore, the psychic element was likely present. In lumbago and shoulder pains, several cases were very promptly relieved. In order that this study might not undermine surgery, thus doing harm, no case was treated until the cause of the muscle pain or other pain, in so far as it was possible to locate same, had been removed. As a post-operative treatment it is very valuable.

The number of patients treated by these physicians in cooperation with us is sixty-four. In fifty-seven, there is definite benefit, and the large majority could be termed cured. The remaining seven do not show any particular benefit. None, however, has been made worse, and the treatment seems to be perfectly harmless.

We feel that the use of typhoid vaccine, old, is a remedy which, if used generally in post-operative cases and non-operable muscle pains,

will produce results satisfactory in a vast number of patients. We are prone sometimes to run wild over spectacular things, like high sounding mechanical and electrical aids of very doubtful value, while we overlook "acres of diamonds" right under our feet.

## MEDICAL JAZZ—A PLEA FOR HARMONY IN MEDICINE.\*

By ROY K. FLANNAGAN, M. D., Richmond, Va.  
Assistant State Health Commissioner.

### A DIVINE COMMISSION

Lord Francis Bacon, in his treatise on "The Advancement of Learning," critically examines the practice of medicine of his day, diagnoses its ailments, and prescribes treatment that is not only applicable to today's sadly afflicted medical profession, but appears to be its only hope. This great scholar, poet, scientist, philosopher, lawyer, and medical author, says:

"The poets did well to conjoin music and medicine in Apollo, because the office of medicine is but to tune this curious harp of man's body and reduce it to harmony."<sup>†</sup>

He says of the physician's function as a prolonger of life, "that it is the most noble of all for if it be supplied, medicine will then not be taken up with sordid cures, nor physicians only *honored for necessity*, but as the dispensers of the greatest earthly happiness that can be conferred on mortals."

If Bacon here expresses a thought worthy of consideration, it would be well for the modern medical man to check up on himself and observe whether his own attitude towards his "noble art" and toward the public is in line with the great humanitarian principle enunciated here by Bacon, or whether the sum total of his efforts in tinkering with the strings of the "harp of life" is simply the promotion of jazz.

### THE JAZZ ERA

We are apparently passing through an era in which no reputation, however well established, no belief, however sacred, no custom, however deeply rooted, and no institution, however dignified, but has been subjected to a process of jazzing and everybody is doing it. Jazz exponents, votaries and apologists, are as plentiful as gasoline stations, exposed

\*Read by title at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

†Advancement of Learning, Basil Montagu's Works of Lord Bacon, Book 11, page 203.

knees and chewing gum—and even the regular medical profession, the last fortress of dignity and conservatism in a topsy-turvy world, seems now disposed to add its note to the negroid syncopations and their accompaniments which threaten to jar loose the restraints imposed by a millennium of civilized progress.

It would seem that the historical perspective of the doctor ought to have saved him this humiliation, for whatever be the reaction of the man in the street whose soul is stirred by the radio's rendering of the "Congo Blues" or "The Red Light Razz", the physician is aware that these noises are nothing new, but are simply a throw-back to the time of his ancient progenitor, the jungle medicine man. He well knows that weird nonsense accompanied by suggestive dances to the thumping of the tom-tom and the shaking of the rattle-box have been the stage properties of the witch doctor since before the dawn of civilization. A well informed doctor, therefore, ought not to have much patience with such expressions of degenerative impulse; least of all should he wish to adopt them. Historically, he passed that point five hundred years before the Christian era when Hippocrates, of Cos, laid down the law of "modern" medicine.

#### COMPETITORS

Illustrating the doctor's situation. Bacon again appeals to the classics, observing that "the poets were clear sighted when they made Aesculapius the physician, and Circe the witch, brother and sister, both children of Apollo, for in all times in the opinion of the multitude, witches and old women have had competition with physicians, yea, we see that the weakness and credulity of men is such that they often prefer a mountebank to a learned physician." With this tendency to combat a tendency only a little less apparent now than in Bacon's time, since it is not alone the prerogative of the ignorant and poorly placed in life: physicians today will, if they are wise, remember their spiritual allegiance to the second highest deity among the five celestial gods of ancient Greece—god of light, of music and of medicine, of poetry and of rhetoric, the divine Apollo\* and be in a very real sense exponents, so to speak, of classical music, abhorring jazz with

all it implies of disharmony, retrogression, charlatanism and self-seeking opportunism.

#### CHORDS AND DISCORDS

Complete and abounding health, uniform throughout the body politic, resulting in the fullest expression of vibrant life, is the theme of the symphony which the true physician would make possible by his labors on the harp of humanity. Sadly out of tune he finds it and even more distressing at times in its effects is his own uncultivated ear. It is in the hope of stimulating a desire for higher order of medical culture and a fuller appreciation of the mission of the doctor as an exponent of true harmony in the general medical world that this excursion into the classics of the profession of medicine is taken.

In view of much that is being said by medical men in positions of authority, some of whom claim to be spokesmen of organized medicine in this country, and the inharmonious reverberations that have followed, it would seem that the foregoing reminder and admonition is peculiarly appropriate at this time. It is impossible to keep jazz under cover, and thoughtful men of every walk of life are pondering upon the discordant notes so evident in the medical choir.

#### THE PERFORMANCE

The howls about State medicine, the growls over the encroachment of public health practice upon the domain of curative medicine, the groans from both the general profession and the public over "group medicine" and its Henry Ford-like efficiency and profit, the squeals as the breach widens between the specialist and the private practitioner, the actual explosions consequent upon the establishment of pay clinics designed to lower the cost of medical care, the battle din against the creation by the government in the United States Department of Labor of a bureau for the reduction of infant and maternal mortality, the clamor of the country doctor and the country populace for a better place, medically speaking, in the sun, and through it all the minor note of despair from the increasing number of self-respecting wage earners in every city in the land bankrupted in large numbers by medical bills they cannot hope to pay—all combine to fill the air with sound in different keys which is jazz and nothing else.

If this were all, the public which loves to

\*"Mine is the invention of the charming lyre;  
Sweet notes of heavenly music I inspire  
Medicine is mine; what herbs and simples grow  
In fields, in forests, all their powers I know,  
And am the great physician called below."  
(Ovid Met 1).



witness a noisy domestic scrap, and is more or less familiar with slap stick scenarios and inured to syncopating discords, would look on with delight, grin and gossip about the row, and then go on about its business. But unfortunately this is not the whole story.

#### RIVAL ORCHESTRA

The irregular, the quack, the cultist, the religious healing fakir and the pathist of every kind and condition, all modern prototypes in greater or less degree of the witch doctor of the jungle, capitalize the medical row, set up a rival orchestra and with some show of reason but little truth, appeal to the public for consideration with noisy mouthings no whit more discordant, though better organized, than those the medical profession in its strife gives forth.

The poor bewildered public accustomed to buy everything from pins to opinions under the impact of high pressure salesmanship, more often than not takes the quack and lets the doctor go. "Regular medicine" cannot compete with such specialists on their own ground and it ought not to try, for this group illustrates perfectly the ass in the fable of "The Ass in the Lion's Skin," giving forth a sound and nothing but a sound, the canny fox to call the raucous bluff being conspicuous for his absence.

The physician should not fool himself with the pretense that he has less human nature than other people and over-emphasize his own high and mighty sentiments, for there is more than a suspicion growing that the same sort of self-interest so blatantly apparent in the advertising specialist's appeals to the public is not wanting entirely from the loudly argumentative outpourings of certain conspicuous medical men.

#### UNDER TONES

It seems to be true that the fundamental inspiration for all of the discordant notes listed above is self-interest and fear. The invoking of public spirit, altruism, medical honor and prestige appear rather unconvincing camouflage. When self-interest is plain, every other motive is discounted, and unfortunately for him its exhibition is not more lovely in the physician than in the quack.

It is clear, however, to discriminating folk that the interest of the public is bound up in the interest of the doctor, but people are not

generally discriminating, and where they are, they well know that in matters affecting their own interest doctors are human too.

It would be foolish indeed for anyone to inveigh against self-interest, *per se*, for it is the moving force in all material progress. It has caused the doctor to become indispensable and prosperous in his position as a curative agent and it must be invoked to save him to society in honor and dignity as disease and disability become less and less prevalent.

#### CLASSIC MUSIC

The doctor, however, must demonstrate by public service, not by word battles, that he deserves to survive. Enlightened self-interest in my judgment demands that the doctor stick to the ancient principles that have alone brought honor to his name,—to return to our analogy—he should not permit himself to be drafted into the chorus of anything less than grand opera. Let him stand for true fundamentals and be the exponent and patron only of music that uplifts the soul and blesses mankind. It is here that Lord Bacon offers another wise suggestion, he states that for the doctor "one thing of greater use than all the rest is needed, a genuine and active philosophy whereon to build the science of physic." Without such a philosophy the doctor will indeed "be taken up with sordid cures and be honored only for necessity." Without this philosophy the jazz spirit is sure to prevail and his status as an individual working on individuals for individual reward take the most conspicuous place in the physician's thought. With such a philosophy clearly apprehended, harmonious relationship with his fellows in all aspects of the common task becomes obviously imperative and the public interest appears with inexorable logic as the larger duty before him.

#### HARP STRINGS

In trying to make clear his meaning as to an active philosophy for the doctor, Bacon arranged knowledge respecting the body under four general divisions, — health, strength, beauty, pleasure, four strings as it were to the harp of Apollo; and the health aspect of this knowledge, the aspect with which the physician has specially to do, he says is threefold: (1) The preservation of health, (2) The cure of disease, (3) The prolongation of life.

He thus places cure of disease in between the two public health principles which are now

comprehended in modern terminology under Prevention of Disease and the Promotion of Health and giving a two out of three preponderance to public health practice in the tripod of medical philosophy, or to return to our text—two strands in the three ply medical string to Apollo's harp. What else but jazz can result when all three strands in one string do not co-ordinate smoothly so as to give forth a constant note?

### HARMONY

Medicine, therefore, is one; whatever its component elements, harmony is an essential principle of it, discord is disgrace. The hindering of waste by the prevention of disease, the skilful application of science to the repair of tissue when repair is needed, and the promotion of bodily well-being to advanced age is the medical man's task. However, he may specialize, he cannot specialize outside of this program and be true to the philosophy of his calling. He may know less about one aspect than he does of another; he may be much restricted in the scope of his contacts with the public but in the foreground of his mind complete and continuous bodily health for his patient is the end to which his immediate efforts are bent. The eye specialist cannot simply consider the eye, nor the orthopedist the bones and joints; they along with the surgeon in all his other manifestations must coordinate with the internist, the psychiatrist, the urologist, the dermatologist, "et id omne genus," and as a medical gentleman and a scholar, not to mention his status as a citizen and a patriot, the doctor must consider the relations of his patient to the community and neglect no advice or precaution that will tend to keep the ailment he is then treating from recurring or becoming more prevalent.

### CHEAP MUSIC

Not to do this puts him in the class of the patch-work artist and makes of his profession a trade. Medical ethics and the best traditions of his art impel the regular physician to attack not only disease but the causes of disease and this makes of him always a martyr to his own efficiency and honorable conduct. Disease is unsocial and no institution deserves to continue to exist that depends for its continued existence upon a principle destructive of society. Disease should not be the doctor's stock-in-trade. Health ought to be the atmos-

phere in which he moves and thrives. Some way should be found by which the public may cause it to be as profitable for the doctor to live in the gradual disappearance of disease and disability as he now is able to do in its continued presence. The solution of this problem, and it is a problem that involves the future status of a truly noble profession, is a task for medical statesmanship, and such statesmanship appears to be woefully lacking in prominent places where it should be found.

In other words, the jazz spirit with all of its discordant, retrogressive, individualistic implications has infected even the citadels of science and the rank and file of the medical group must try to act as though they had never heard good music or lose standing with their fellows.

### THE SWAN SONG

Perhaps it is too late to stem the tide of medical jazz. If so, then it is time to take another leaf out of Bacon's book—again hear him. "Physicians say to themselves in the words of Solomon, 'If it befall to me as it befallerth to fools, why should I labor to be more wise?' and, therefore, one cannot greatly blame them, that they commonly study some other art or science more than their profession. Hence, we find among them poets, antiquaries, critics, politicians and divines (sic) and in each more knowing than in medicine. . . . They thus turn away from medical art, perhaps as they are men—no doubt it is because they find that mediocrity and excellency in their own art makes no difference in profit or reputation."

Jazz is the apotheosis of the mediocre. Talented physicians of Bacon's day apparently including Bacon himself refused to practice medicine in order to escape it. God forbid that to save his self-respect and his sense of Divine harmony the present day ethical physician shall be forced to do likewise.

### SOME CASES.\*

By CHARLES S. WEBB, PH.B., M. D., Bowling Green, Va.

Some cases which may be of interest to the profession are herewith related:

*Case 1.*—Mr. C., age 40, strong, well-built, a teacher by profession, was taken suddenly with a severe cough, with copious expectoration, temperature normal. The cough was

\*Read by title at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, Va., October 22-24, 1929.



unmanageable, expectoration was yellow, and of a foul, disgusting odor. I confess that I was puzzled. Two other physicians were called in but could not agree on a diagnosis. One said the patient had gangrene of the lung and would not live twenty-four hours. I was determined to get at the bottom of it, if possible, so I made a thorough analysis of the expectorated matter. To my astonishment I found *bile*. However, I wanted to prove the case. I remembered that Dalton's physiology, as taught by Dr. James L. Cabell at the University of Virginia, claimed that cat's bile would respond to the same test as human bile. So I tried cat's bile with the same test and with the same result. I then felt perfectly sure of my diagnosis. It was a case of abscess of the liver, discharging through the lungs. So I hastened to inform the grief-stricken family. They had already told the professor "goodbye," expecting him to drop off at any moment. There was great rejoicing when I informed them that his chances for recovery were very good. He soon came back to his former good health.

*Case 2.*—Mr. R., age about 70, in vigorous health except that he felt himself continuously annoyed by attacks of indigestion, much of which I believe was caused by irregular eating. Sometimes a long fast and then a very large meal. Was called at night and found this patient suffering from acute pains in the stomach, just below the ensiform cartilage and a little to the right. He was suffering greatly. I at once gave him a hypodermic of morphine and atropine and stayed with him until he was comfortable. I advised his son to take him to a hospital as soon as possible as I was of the opinion that he had gastric ulcer, though I confess that I did not suspect perforation. I was quite sure that the stomach was empty, and that it was not indigestion. At the hospital the diagnosis was cancer of the stomach, but they would keep him for a few days "under observation". In the meantime it became evident that there was fluid of some sort in the pleural cavity. Aspiration brought out a large quantity of pus, from which it was concluded that the patient had at some time had pleurisy. I was satisfied that this was not the case. However, the patient was homesick and had his son phone to me to come and get him. I brought him home in an ambulance, and at his request called

Dr. J. Morrison Hutcheson. When Dr. Hutcheson came, I gave him a history of the case in detail, and told him that my diagnosis was perforated ulcer with a resultant abscess. He said that sounded rational, but preferred to take him back to a hospital, so that he might be ready for surgical interference if the occasion should demand it. To this the patient readily consented. He did not rally, and in a few days died. Dr. Hutcheson got the privilege of an autopsy, and wrote to me as follows: "After I talked to you over the phone yesterday, Mr. R. became rapidly worse and died about 5:30 P. M. Dr. Shepherd and I made an examination of the abdominal cavity and found a large subphrenic abscess thoroughly walled in from the rest of the abdomen by dense adhesions, communicating behind the liver and through the diaphragm with the pleural cavity. There were several openings in the diaphragm. The liver was definitely enlarged, but no abscess or tumor in it could he make out. The pyloric end of the stomach was firmly bound in adhesions and when these were separated a jagged perforation one cm. in diameter was located just to the gastric side of the pyloric ring and posteriorly. Apparently the abscess cavity communicated both with the lung and with the stomach as this opening showed no sign of having been sealed. We were unable to examine the lung, so that the question of the origin of the pneumothorax, which appeared a few days ago, was not determined. I suspect that it came from the intestines rather than from rupture of the lung. The surprising thing to me about this case is the time that he was able to live with so much pathology. The infection must have been of a mild type. It is only the second case of perforated ulcer that I have seen survive for any length of time without immediate operation."

*Case 3.*—Mrs. B., age about 55, long past the menopause, married, never had any children, general health fairly good. Was called twice to see this lady, whom I had never treated before. Each time I found her suffering from what seemed to be an attack of angina pectoris. She certainly had all the symptoms except one—she could lie down without increasing her discomfort. However, the inability to lie down is not an invariable symptom, even in fatal cases. She told me that she had been having these attacks for the past

several years, at intervals varying from a few weeks to a month or two. The diagnosis had been nervous indigestion, or something of that sort, and the only treatment had been for temporary relief, with a warning as to diet. I had my doubts about this, so I looked for something else. The stethoscope revealed nothing; in fact, it rarely does in these cases. There was no suspicion of fatty heart or of arterial sclerosis. I asked about the condition of the teeth. She said they were all right, had been X-rayed and thoroughly fixed up. Nevertheless, I persuaded her to try again, so the teeth were X-rayed under my immediate supervision. We found a piece of root which had been broken off and left there when a tooth was extracted twelve years before. It was well covered by a healthy looking gum and had never given her any trouble. In fact, she did not know it was there. This was taken out and exhibited to her. Now the most comforting part of this whole transaction is that she has never had an attack of angina since, and that was a year ago. This is the third case within two years in which I have seen the attacks disappear following a thorough treatment of the teeth by a competent dentist.

*Case 4.*—A man about 35, legs enormously swollen from the hip down. Had not been sick at all, and had no acute or chronic disease of any kind that I could discover. Examination showed that the heart had nothing to do with it. Analysis showed that the kidneys had nothing to do with it. Then, what was it? I had a vague idea that may be the liver was implicated in some way. Now I cannot trace the exact process of reasoning which induced me to give him potassium iodide, but I fixed up a solution in water so that he would get ten grains in half a tumbler of water three times a day for several weeks. He was ordered to see me again after the medicine had all been taken. About three weeks after that he came, the swelling all gone, his legs as slim as ever they were, feeling first rate. He had done nothing for himself, except to take the medicine I gave him, regularly, according to directions. What was the matter with him? And how did the potassium iodide effect a cure? Or was it only a post hoc? I confess I don't know.

NOTE:—This paper was on the program for Thursday night at the recent annual meeting of the Medical Society of Virginia. When I found that I could

not be present, it was too late to send the paper. I would be glad of any comments on these cases, either through the Journal or by personal letter.

## SOME ASPECTS OF THE PERIODIC EXAMINATION.\*

By A. A. HOUSER, M. D., Richmond, Va.

There is no phase of medical practice that should elicit more interest from the general practitioners than the periodic health examination. There are a number of persons in almost every community desirous of receiving this service from medical science.

The only thing to prevent the periodic health examination gaining momentum rapidly is the failure of the physician of the community to have a perspective to encourage, to render efficient service in educating the patient to understand his health potentiality, and to use the means made available by medical science that it may be realized.

There is an increasing trend for acute infectious diseases to be less prevalent and, when they exist, not to require as much of the physician's time as formerly. Acute infections are going to be less prevalent when every community has a complete public health unit, and this unit has the sincere cooperation of the local physician.

Some physicians have had a feeling of antagonism to public health activities that would be very shocking if it could all be uncovered and thrown on a screen. This is an easy state of mind to develop if the physician loses the true perspective of his vocation, which is not a business that he is engaged in, but a quest to render service. The periodic examination has no conflict with public health, but activates the community to get a greater benefit from public health.

If individual medicine survives, the major part of its effort is going to be concerned with health rather than, as at present, with sickness. This change, of necessity, will take place slowly. When it is complete there will be a perfect harmony between the physician and the public health organization of the community, the public health organizations acting somewhat as a police protecting the people from infection, the outside forces that destroy health; the physician concerning himself in the main, analyzing the individual and teaching him how to conduct his life that he may not be prematurely destroyed by the inside

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.



forces, which are under his control, that destroy health.

On account of there not being a synchronization of medical effort somewhat after this fashion, there is an economic loss each year in this country estimated at \$3,000,000,000. Some life insurance companies and industrial organizations are becoming gravely concerned about having this needless waste corrected. Medicine as a whole has not manifested much concern about this stupendous problem.

The larger part of medical effort is directed to the repair of the disorders that are responsible for this great economic loss, making only meager and often no effort to teach the patient to avoid a recurrence of another tragedy of the same or worse nature. The effort that life insurance and industrial organizations have made to improve the health condition of their people has not been as successful as it should have been due to the fact that often the men whom they employed were not interested in health, neither did they possess a teaching vision to transmit the health education to the individual.

The general public in rather large numbers is beginning to realize that it is possible for the physician to render to them a greater service than a prescription to relieve discomfort, and that medicine is not a panacea for health. This mental awakening in a large measure has been occasioned by the general health discussions of the public press. This means of health education has performed a wonderful service in awakening an urge in man for health understanding.

The foundation of health education has to be laid individually. Each individual has to adjust his life to the principles of scientific medicine. Health cannot be achieved by the issuance of a fabricated medical teaching that will fit the individual. The only method by which the problem can be solved is through the periodic health examination and individual education. The physician has the choice of preparing himself to render this more profitable service, or sink into oblivion as the intelligence of his patient develops.

The potential market for the performance of the periodic health examination cannot be supplied even if the number of physicians were doubled. Every individual needs this service each year and would have it if he but knew the benefit it could be to him. I re-

gard five hundred as the liberal maximum number of examinations a physician can perform in a year. The physician who equips himself to do the periodic health examination has chosen a specialty that will never be overcrowded.

Many laymen, as well as physicians, have asked the question: "What benefit can a well person derive from a physical examination?" Many, apparently well, will be surprised at the gross pathology found on their initial examination that was apparently giving no symptoms.

There are physicians who regard the periodic examination only as a means of discovering early pathology. It is desirable for the patient to have knowledge of early pathology, but the periodic health examination should be primarily concerned in pathological tendencies rather than pathological happenings. There is evidence of potential pathology years before real pathology exists, in many cases. If they are sensed and vigorous educational efforts exerted, the great mass of troubles that shorten life and lower human productivity can be averted. Every biological entity possesses evidence of its life habits, both physical and emotional. Man is the easiest of any of the animals in which to observe physical and emotional trends that tend to produce pathology.

The physician who accepts the service of periodic examiner must not only understand a technique of charting pathology; he must know health better than he knows sickness. He must be familiar with habits both physical and emotional that tend to destroy health.

The periodic health examination cannot gain favor with intelligent people unless the physician regards every applicant for examination as an opportunity to render a sacred service regardless of how well he may seem.

The health examination should have a routine procedure more exacting than the examination conducted for the purpose of revealing symptom-giving pathology, though in general they should be similar. There is an opportunity for many laboratory procedures to render a greater service in the health examination than in the examination of the sick. History is more apt to interfere with the constructive health examination than help. All history should be excluded except an opening statement by the patient of how he feels com-

pared to his conception of how he thinks he ought to feel. This statement need not be accurate, but it should be an honest effort of the patient to reveal the kind of reaction his mind gets from his body.

The health examiner must be concerned primarily with investigations of a physical and observatory nature, and not with help from the patient through question asking. Information gotten from the patient is apt to be misleading, regardless of how earnest and intelligent the patient may be.

There should be developed a democratic relationship between the patient and physician during the examination, though the conversation should not be concerned with the examination at hand. The physician who promotes the cause of the periodic health examination must above all things resolve to tell his patients the whole truth about the result of his examination. To do this, he must make his survey thorough enough to crystallize an opinion that he is not afraid to express. Most tragic mistakes in diagnostic skill are the result of a premature conclusion or not following through an adequate routine procedure. There is nothing so wholesome for the patient's mind as to be convinced that what the physician says about his condition is what he thinks and all that he knows.

The health examiner must regard himself primarily as a teacher. The predominant factor in health realization is health understanding. The only way the individual can have health understanding is through the periodic examination and individual education, directing him in the path of promise and safety that scientific medicine has provided.

In addition to the visible technique, the health examiner must have an invisible technique that reveals the patient's emotional pathology, a conspicuous cause of functional disturbances and physical pathology. Every step of the visible technique has its associated invisible potentiality to reveal some attribute of the patient's emotional make up. The one step in the visible technique that offers the greatest help in the invisible art of emotional understanding is the blood pressure reading. It has a greater potentiality for help in revealing emotional tension that will produce cardiovascular pathology than it has in giving information of existing cardiovascular pathology.

There has been much effective teaching done to emphasize the importance of early diagnosis, especially of cancer and tuberculosis.

There is a pre-pathological setting that usually makes these dreaded diseases possible. Had this been sensed in the health examination and corrected, the chances are these diseases would not have developed.

In the past the attitude towards the sick has been one of sympathy. In the not far distant future, the attitude will somewhat simulate the one we should have for the criminal. We will feel sorry for him in his miserable plight, but every one will know he is sick because he is ignorant and did not avail himself of the privilege of health that medical science has made plain.

#### *701 Professional Building.*

### **THE RELATION BETWEEN FOCAL INFECTIONS AND ANGINA PECTORIS— A CLINICAL STUDY.\***

By JAMES H. SMITH, M. D., Richmond, Va.

About 1920, a man who seemed to present the symptoms of true angina pectoris was apparently relieved of his symptoms by the removal of infected tonsils. After a short while he returned to an unusually active life connected with lumbering operations and has remained well. Since that time I have been impressed with the possibility of a relationship between such infections and the symptoms of angina, and have made consistent efforts to eradicate such infections as could be found. Experience with subsequent cases is the subject of this paper. While the cases are too few in number to justify any conclusion, I think it can be shown that the inquiry is promising.

It is first necessary to define our terms. The chest pains commonly called pseudo-angina, light in character, not referred, unassociated with digestive symptoms or other marked disturbance, unrelated to exercise but occurring, perhaps, as part of a picture such as essential hypertension, are not included, since they are not known to have later developed more characteristic symptoms of true angina. In the cases under discussion, generally speaking, the symptoms were quite as typical in the cases that have not died as in those that have. Time does not permit a presentation of abstracts of each case, but the following may be cited as

\*From the Medical Department, St. Luke's Hospital.



an illustration of true angina pectoris:

Since an attack of congestion of the lung in 1919, the patient has had attacks of pain beginning in the right hypochondrium and extending to the left shoulder and down the left arm along the course of the ulnar nerve. This pain has become more frequent. It comes after exertion and usually after meals. It is promptly relieved by rest and by belching gas. Now he cannot walk any distance without experiencing this pain and has to stop for a few minutes, when relief is prompt.

On the other hand, three cases with the symptoms and signs of coronary thrombosis or myocardial infarction have been excluded. As is so likely to occur in this condition, these three patients died during the attack of almost continuous pain. The pain was unrelieved or only partially relieved by nitroglycerin or morphia, there was moderate fever and leucocytosis, and in one a friction rub. Such cases do not usually offer opportunity for attack on focal infections, and if infections play a part in their etiology the chance for dealing with them is almost limited to the period before the myocardial damage is done. The following note illustrates myocardial infarction:

Onset thirty-six hours previously, at 2 A. M., with sudden sharp pain in the epigastrium, which caused him to perspire freely and to become cold and clammy. At this time he was frightened and thought he was going to die. The pain seemed to be substernal and he felt as if he were held in a vise. Later the pain seemed to become a throbbing sensation in his left shoulder and began to shoot down his left arm. A hypodermic of morphia enabled him to get to sleep for a few hours. He was very uncomfortable during the next day, and the following night did not sleep at all, was very restless and the pain was not relieved by hypodermics. He became very nauseated and vomited. The patient did not seem to improve and was brought to the hospital. The temperature range was from normal to 100; the leucocyte count 16,000, with 78 per cent polymorphonuclears. There was electrocardiographic evidence of coronary thrombosis. The patient died nine days after onset of the attack.

Excluding, then, cases of pseudo-angina and cases of coronary thrombosis with myocardial infarction, there were, between 1921 and 1929, twenty-three cases of seemingly true angina pectoris for analysis with reference to the in-

fluence of focal infections. It should prove of interest on another occasion to go into the question of prognostic factors other than infections, especially the condition of the heart as shown by symptoms, physical signs and the electrocardiograph, the systolic and diastolic blood pressure, correlating these with the infections found and the results of treatment. At this time, however, the more general data can be sketched only in briefest outline without attempting to relate them to the outcome of the case.

The cases were first seen in approximately equal number during the eight years intervening between 1921 and 1929.

Twenty-two were males; only one was a female.

Ten were in the fifth decade of life; nine in the sixth; three in the seventh and one in the eighth.

In eight the pain was recorded as associated with exercise; in eleven it seemed to come with either eating or exercise.

In seven the pain was not described as referred elsewhere from the substernal or epigastric region; in one it was referred to the right arm; in five to the left arm; and in six to both arms.

In twelve the heart was considered to be not enlarged according to physical examination, X-ray examination, or both; in seven it was thought to be enlarged to a moderate degree; and in one it was grossly enlarged. The aorta was enlarged in three cases in which the heart was not apparently larger than normal.

In nineteen there was no history, physical sign or symptom of decompensation; while in four there was evidence of congestive heart failure, and in two of these death followed.

In thirteen no murmur was heard; in five there was a basic systolic murmur; in two an apical systolic; and in two a basic diastolic.

The myocardial tone was apparently normal in eleven cases; and impaired in twelve.

The electrocardiogram showed minor abnormalities in four cases; slight or doubtful myocardial impairment in three; and definite or gross impairment in five. How far it may be expected that improvement in the subjective symptom of pain will be paralleled by return toward normal of electrographic tracings, I do not know.

It is of some interest to note that of the four cases who have died, three had systolic blood

pressures between 160 and 200, and diastolic pressures between 100 and 110; while nearly all of those who have not died had lower pressures.

The Wassermann reaction was negative in twenty-two; it was positive in one, but this case has been lost sight of.

While digestive symptoms were more or less

One case had cervical sympathectomy done with very satisfactory results.

The advice as to hygiene and mode of life was in principle the same for all of the patients, with allowance, of course, for their respective occupations.

Of the four who died, two were brothers with a notably bad family arterial history;

TABLE I  
HISTORY OF LOCAL INFECTIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Otitis media.....				*				*												*	*		
Sinusitis.....																*		*					
Tonsillectomy.....																		*				*	
Frequent tonsillitis; quinsy...													*				*		*				
Extensive extractions for "pyorrhea".....					*	*														*			*
Dental abscesses.....				*													*				*		
Gonorrheal complications....												*	*										
Late prostatic infection.....			*																	*			
Inflammatory rheumatism....					*							*										*	

ACTIVE FOCAL INFECTIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Otitis media.....								†															
Sinusitis.....														‡					x				
Infected tonsils.....		x	x	x	†					†	x		†						x				
Pyorrhea.....		x	x																				
Dental abscesses.....		x	x	x			x		†	‡	‡				x	x	†		x				
Late prostatic infection.....								†				‡										†	
RESULTS.....	D	I	U	I	U	I	D	U	?	D	I	I	I	I	I	I	D	I	I	I	I	?	I

Symbols: Italics, records or examination not complete, 1, 10, 20 and 23.  
\* positive history of local infection.  
† active focal infection not treated or inadequately treated.  
‡ active focal infection partially eradicated.  
x active focal infection eradicated.  
D died; U unimproved; I improved; ? no record.

prominent in nine cases, there is a striking absence of any positive proof of organic lesion of the gastro-intestinal tract. One case showed X-ray evidence of chronic cholecystitis and chronic appendicitis, but the gall-bladder has been less conspicuous in the series than might have been expected.

both were cripples, one with hip-joint disease and the other with Pott's disease. One died in a hotel in New York; the other after going to the bathroom against advice during an attack of grippe. The third death occurred in the patient's office, down town, and the fourth died as a hospital bed patient.



Turning now to a consideration of focal infections, the attempt has been made to present the data in graphic form in a series of three tables. While something may be thus accomplished in the way of brevity and a comprehensive view, it leaves much to be desired. It

at examination of each patient, roughly the thoroughness of treatment of the infection, and, at the bottom of the table, the result.

The second table shows the same data in more composite form and grouped according to results.

TABLE II  
LOCAL AND FOCAL INFECTIONS GROUPED ACCORDING TO RESULTS

DIED				UNIMPROVED			No Record		IMPROVED													
1	7	10	17	3	5	8	9	22	2	4	6	11	12	13	14	15	16	18	19	20	21	23
—		—	*	*	*	*		*		*	*		*	*			*	*	*	*	*	*
			*		*			*		*			*	*				*		*	*	
																				*		
	x	†	†	x	†	†	†	†	x	x		x	†	†	†	x	x		x	—		—
		†		x		†			x	x		†							x			
				x					x										x			

Symbols: -records or examination not complete.  
 \* positive history of local infection.  
 † active focal infection not treated or inadequately treated.  
 ‡ active focal infection partially eradicated.  
 x active focal infection eradicated.

is impossible to indicate in this way the severity of the infection, the time relation between treatment of the infection on the one hand, and, on the other, the onset, persistence or relief of the attacks of angina. But, again,

The third table is a summary of the first two.

The records of examination are distinctly incomplete in four cases, and in two cases the subsequent history is unknown. It does seem,

TABLE III\*

	DIED		UNIMPROVED		No RECORD	IMPROVED				
Record or examination incomplete.....(-)	1					20	23			
Infection untreated or inadequately treated.....(†)	10	17	5	8	9	13	21			
Infection partially eradicated..(‡)					22	11	12	14		
Infection eradicated.....(x)	7		3			2	4	15	16	19
No active infection.....						6	18			
TOTALS.....	4		3		2	14				

Of the seven dead or unimproved, 5 were inadequately dealt with, as regards infection.

Of the 14 improved, 10 were more or less adequately treated, as regards infection.

\*Numerals indicate case number except in the line of totals.

such a detailed account would trespass too much on our time.

The first table shows the history of local infections and the active focal infections found

however, that the incidence of focal infections is rather marked even for a group of individuals of middle age and beyond, and the third table seems to justify the remark:

Of the seven dead or unimproved, five were inadequately dealt with as regards infection, and,

Of the fourteen improved, ten were more or less adequately treated as regards infection.

It would seem, therefore, that, while no conclusion can be drawn from so limited a number of cases, they at least suggest the importance of recognizing and eradicating focal infections in subjects of angina pectoris, more especially since our therapeutic efforts in their behalf are at best unsatisfactory. Under the conditions discussed, radicalism in lesser matters may be, and I believe is, a position of conservatism on the main issue.

*McGuire Clinic.*

### A CASE OF TYPHUS-LIKE FEVER FOLLOWING TICK BITE.\*

By R. D. GLASSER, M. D., Norfolk, Va.

Mrs. S. P., age thirty-five, rather stout, above the average mentality and cleanliness, wife of a butcher in the city of Norfolk, Va., was bitten on the inner left thigh, the left buttocks and the lower right abdomen by a tick which came from a calf hide shipped from North Carolina or Virginia.

At each point of the tick bite, swelling, redness, and a small ulcer developed. She destroyed the tick. Similar ticks had often been noticed by the butcher and his family, and occasionally a tick had bitten one of them, but never before resulted in any illness.

On July 15, 1926, ten days after the bite, she had a chill, fever, severe headaches, muscular and joint pains all over the body. Two days later, her illness increased in severity when my first visit was made. At this time her temperature ranged from 100-103, pulse reaching 110 and respiration 28. Her skin was flushed and there was an erythematous eruption on both arms, chest and abdomen. There was localized swelling about the ulcers where the tick had bitten her. The heart and lungs were apparently normal and the abdomen was large and flabby, presenting a distinct movable mass in the lower right quadrant. This mass was not connected in any way with her present illness. The spleen was not palpable because of the excessive abdominal fat. The next morning the rash was still present, temperature reached 104, and prostration was more

marked. That same evening the rash faded and reappeared later. The following morning she was admitted to St. Vincent Hospital with a temperature of 105 and extremely prostrated. The face was flushed, the conjunctivae congested and watery, the expression anxious and the mental condition dull. Questions were answered slowly, mental concentration being obviously difficult. The tongue was very dry and coated. There were no nits or evidences of lice in the head or clothing. Lice had been carefully looked for when first seen and upon admission to the hospital. There was no evidence of any rash at this time. The submaxillary glands were not enlarged but tender. The bitten areas appeared punched out and filled with necrotic plugs. There was no soreness or enlargement in the regional glands. Her condition continued febrile, temperature ranging 104-105.4, while prostration and delirium were quite marked.

July 25th, five days after admission to the hospital, the rash reappeared, becoming more definite and purplish and now covered all parts of the body except the face. There was a fine petechial rash appearing in discrete irregular macules over the chest, back and extremities, also including palms and soles. These would disappear upon pressure. But the majority were distinctly hemorrhagic in type and did not disappear upon pressure.

The inguinal glands on both sides were palpable and slightly tender. Small healing ulcers were still present on the lower right abdomen, left inner thigh and left buttock at the point of the tick bite.

*Laboratory Findings:*—Urine examinations of catheterized specimens, made on the 21st, 24th, and 26th of July, revealed some albumin, fine granular casts and a few pus cells.

The blood picture on July 20th showed white blood cells 5600, a normal differential count, and smears were negative for blood parasites.

On July 21st, the Widal was negative and a blood culture was likewise negative.

July 22nd, stool was negative for parasites.

July 24th, white blood cells 8800; small mononuclears 10 per cent; large mononuclears 10 per cent; polymorphonuclears 89 per cent.

Blood serum taken from the patient on July 25th, 28th and August 6th did not agglutinate *B. proteus* X<sub>19</sub> or *B. tularensis*. The specimen

\*Read before the Norfolk County Medical Society, May 20, 1929.



taken on July 28th also gave negative agglutination for B. Eberthi and B. abortus.

On July 28th, 13th day of illness, Dr. R. R. Spencer, of the Hygienic Laboratory of Washington, was consulted. Six guinea pigs were injected intraperitoneally with whole citrated blood of the patient, each animal receiving 2 c.c. Only one of these guinea pigs developed fever which began on the 13th day after injection. Transfer of blood from this to other guinea pigs and to a monkey were made with entirely negative results.

The patient continued febrile for three weeks. There was no definite crisis, convalescence being very slow, and the patient was unable to help herself for nearly three months. There were no sequelae, although she did complain with occasional lumbar pains the rest of 1926 and during 1927; this was probably due to infected tonsils.

*Discussion.*—The clinical aspects of this case, in nearly every detail, suggested typhus fever, although it was not supported by the laboratory findings. Failure of the serum to agglutinate B. proteus X<sub>19</sub> and the negative results of animal inoculation do not, however, exclude typhus fever.

Rocky Mountain spotted fever was considered, but the negative animal inoculations and the locality make such a diagnosis very doubtful.

Other ticks similar to the one that had bitten the patient were secured and proved to be *Amblyomma Americanum*. This tick is an occasional parasite of man but has never been implicated in the transmission of disease. The tick bites may have been coincidental but because the bites caused local sores and glandular enlargement preceding the onset of fever, one cannot ignore their possible significance.

The case is reported because of the association of the illness with tick bites, the consistently negative agglutination of B. proteus X<sub>19</sub> and the failure to reproduce the disease in laboratory animals.

I am indebted to Dr. Spencer for his many valuable suggestions in assisting me to report this case in detail.

#### *Medical Arts Building.*

A man without mirth is like a wagon without springs, in which one is caused disagreeably to jolt by every pebble over which it runs.—Henry Ward Beecher.

## TUBERCULOSIS OF THE ILEOCECAL VALVE—REPORT OF AN UNUSUAL CASE OF INTESTINAL OBSTRUCTION.\*

By WALLACE M. YATER, M. D., Washington, D. C.  
Full Time Clinical Professor of Medicine, Georgetown University, School of Medicine.

The following case of intestinal obstruction is unusual in two respects: 1, Because the ileocecal opening was almost completely stenosed by tuberculosis, which was apparently confined strictly to the so-called ileocecal valve; and, 2, Because a mass of feces, composed mainly of watermelon seed, was present in the terminal ileum, and probably acted as a ball-valve.

### CASE REPORT.

The patient, a colored man, aged 22 years, entered Georgetown University Hospital on March 15, 1929, complaining of generalized cramp-like abdominal pains. At the age of thirteen he had had typhoid fever, and he had suffered from rheumatic pains in the joints of his legs practically all of his life. For several years he had had vague abdominal distress with occasional paroxysms of crampy pain. Since December, 1928, he had suffered from a more or less constant aching sensation in the abdomen, with bouts of colicky pain which became very frequent and very severe two weeks before he was sent to the hospital. Toward the end of this period the pain recurred every few minutes and was worse at night. The pain was most severe in the right lower quadrant and umbilical region. With each attack of pain the patient had noticed a knot the size of a hen's egg moving about in the right lower quadrant of the abdomen. The pain was increased by exertion and was not influenced by eating. For three days before admission the desire to eat had been absent and the bowels had not moved. Physical examination revealed a somewhat emaciated and dehydrated young negro, apparently in great pain. The examination was essentially negative except for the abdomen. The latter was not distended but the muscles were very tense, and tenderness was complained of on palpation, especially in the right iliac region. Rectal digital examination revealed a doughy, tender mass in this region. The temperature was 98.6° F., and the pulse rate 96 beats per minute. The urinalysis was essentially normal. The leucocytes numbered 5,750 per cu. mm. of blood, of

\*From the Georgetown University School of Medicine.

which 70 per cent were polymorphonuclear neutrophils. The blood nonprotein nitrogen was 50 mg. per 100 c.c. of blood. Roentgenologic examination of the gastro-intestinal tract showed that several feet of the terminal ileum was markedly dilated, beyond which the barium failed to pass. A purgative enema was very effective and fluoroscopic study after a barium enema revealed a well-filled and apparently normal colon. The diagnosis made was intestinal obstruction near the ileocecal juncture, and after the administration of considerable fluid by mouth and a liter of ten per cent glucose solution in one per cent saline solution intravenously, the patient was sent to the operating room. Dr. George Tully Vaughan explored the abdomen through a lower right rectus incision. The terminal ileum was tremendously dilated and hypertrophied and filled with impacted fecal matter. The cecum and large intestine appeared normal, but the appendix was enlarged and subacutely inflamed. The ileocecal opening seemed to be very much contracted. There were numerous adhesions and some large lymph nodes about the cecum. The ileum was opened just proximal to the ileocecal juncture and was found to be filled with impacted fecal matter and a large number of black watermelon seed. An opening between the ileum and the cecum could not be found. The fecal matter was removed from the ileum and an anastomosis was made between the terminal ileum and the cecum. The appendix was removed. An ileostomy was done high up in the ileum and a large tube inserted. At the close of the operation the pulse was rapid and weak. After reaction from the anesthesia, the patient vomited. Fluid was administered by hypodermoclysis and by retention enema. During the night the patient became irrational and got out of bed. Early in the morning he died while attempting again to leave his bed.

Necropsy was of interest only as regards the abdomen. This was distended, the distention being due to ileus of the colon and dilatation of the lower five feet of the ileum. There was no gross evidence of peritonitis. The terminal five feet of the ileum was dark but not gangrenous and was fairly well demarcated from the rest of the small intestine. The affected portion of the ileum contained a large quantity of dark brownish, semi-solid fecal material. The muscularis was enormously thick-

ened, the wall being approximately 3 mm. thick. This thickening involved the ileocecal opening, which hardly admitted the point of an ordinary hemostatic forceps. This small channel, however, was almost 2.0 cm. long. There was no evidence of ulceration or induration of the so-called ileocecal valve. The mucosa of the ileum showed only post-mortem discoloration. The colon appeared normal. The ileocecal anastomosis was intact and the stump of the appendix was well closed. Evidence of tuberculosis was not found in the entire body.

Microscopic sections were made of the wall of the stenosed ileocecal canal, of the cecum, and of the ileum at various levels proximal to the ileocecal juncture. The mucous membrane was intact in all portions of the bowel examined. Typical tuberculosis was found involving a greatly thickened submucosa of the tissues of the ileocecal canal, but evidence of such disease could not be found in any other part of the bowel examined. The ileum showed only the marked hypertrophy of the muscular layers. The cecum appeared normal in every respect. Unfortunately, the lymph nodes in the region of the cecum were not saved at necropsy.

#### COMMENT.

Reports of cases of hyperplastic tuberculosis of the ileocecal region are not rare. This region is the common site in the gastro-intestinal tract of hyperplastic tuberculosis, and obstructive rather than ulcerative or toxic phenomena dominate the picture. This type of intestinal tuberculosis was first described by Hartmann and Pilliet in 1899. Usually, however, the degree of stenosis of the ileocecal canal, such as existed in this patient, does not occur until a large mass of fibrous and tuberculous granulation tissue has formed. In this case there was no gross evidence of such a pathologic process, and at first it was thought that the condition was congenital atresia of the ileocecal valve. Although most observers consider this form of tuberculosis to be due to the human bacillus, and secondary to some focus elsewhere, often very slight, the absence of such a demonstrable focus in this instance raises the question as to the primary or secondary nature of the infection and the type of infecting bacillus.

The history indicates that the stenosis had existed for several years. The contents of the



ileum, ordinarily of fluid consistency, had trickled through the small ileocecal channel until the patient had partaken of a feast of watermelon seed, which acted as a nidus for the formation of a ball-valve fecal bolus. There seems to be a belief among negroes that watermelon seed are good medicine for colic, and probably this man consumed the seed in the hope of curing his long standing abdominal "misery."

*Georgetown Hospital.*

### PEPTIC ULCER—THE CLINICAL PROBLEM IN THE LIGHT OF EXPERIMENTAL DATA.\*

By CHARLES BRUCE MORTON, M. D., University, Va.  
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University of Virginia.

The etiology of peptic ulcer may be divided into two problems: first, what causes the initial, acute ulceration; and, second, what prevents the initial ulceration from healing and causes it to assume the characteristics of chronicity.

Regarding the first problem, it is easy to conceive of many causes for acute ulceration in almost any individual. Hot foods, irritants, abrasives, infectious organisms and many other agents may and probably do cause damage to the gastric or duodenal mucosa not infrequently. In the normal individual, however, the injury is rapidly repaired. All experimenters agree that any acute ulcer in the normal stomach or duodenum heals readily and rapidly.

The second problem, what accounts for the chronicity of peptic ulcer, presents many difficulties. Certain experimental data seem to suggest the importance of chemical and mechanical factors.

Experimenters were seldom able to reproduce in animals the chronic, indurated peptic ulcer found in the stomach and duodenum of man until Mann and Williamson, in 1918, reported an investigation in which they induced the formation of typical chronic ulcers in the duodenum and jejunum of dogs in more than 90 per cent of experiments. In 1927, I repeated their procedure, and in twenty consecutive experiments found subacute and chronic ulcers in 100 per cent of experiments. By a modified method I induced the additional formation of typical subacute and chronic peptic

ulcers in the stomach in 62.5 per cent of prolonged experiments.

In the original experiments of Mann and Williamson the ulceration followed transplantation of the bile and pancreatic ducts from their normal position in the duodenum to a point lower down in the intestinal tract. Subsequent experimentation showed that the same result could be accomplished by transplantation of the duodenum with the ducts intact. The technic of this operation, which I shall refer to as "surgical duodenal drainage," is as follows: The pylorus and duodeno-jejunal junction are severed and both of the cut ends of the duodenum closed by suture. The pyloric end of the stomach and the open end of the jejunum are next joined by end-to-end anastomosis, thereby re-establishing the continuity of the gastro-intestinal tract. The loop of the duodenum, containing the common bile duct and the pancreatic ducts, is then drained into the ileum by side-to-side anastomosis (Fig. 1.)

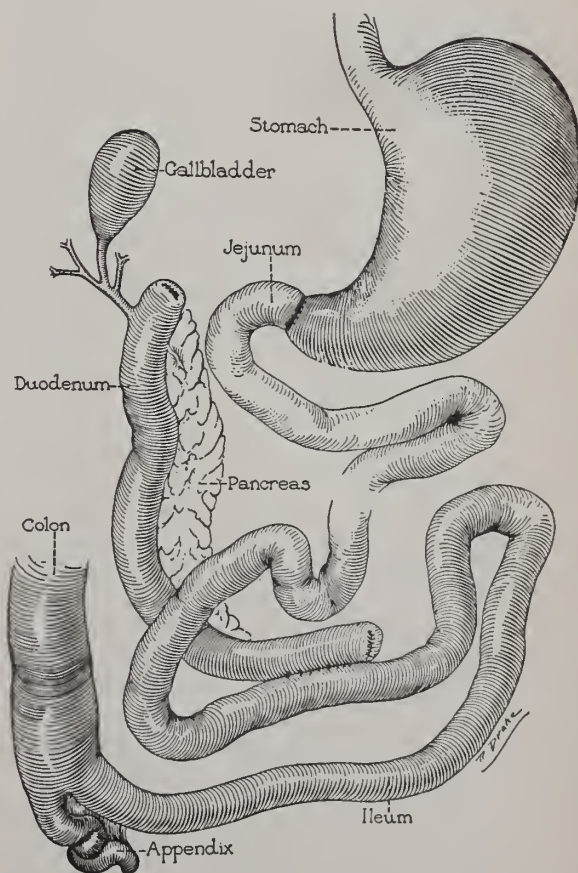


Fig. 1.—Diagram of the operative procedure of surgical duodenal drainage.

\*Read before the Campbell County Medical Society, Lynchburg, Va., June 5, 1929.

This procedure has certain obvious results. The alkaline pancreatic juice, bile and duodenal secretions are thereby drained to the lower intestine so that the normal regurgitation of alkaline juices into the stomach is precluded. Furthermore, the strongly acid gastric chyme empties into a portion of intestine which is incapable of neutralizing it with any degree of rapidity or effectiveness.

Almost invariably in such experiments a chronic peptic ulcer forms just distal to the pylorus at the point where the ejections of acid chyme expelled through the nozzle-like pylorus impinge against the wall of the intestine. It seems significant that the site of the ulceration is exactly the same as that in which ulcer of the duodenum occurs in man.

If in addition to the operation for surgical duodenal drainage several areas of gastric mucosa are excised, I found that the denuded areas on the lesser curvature of the stomach failed to heal and formed typical subacute and chronic gastric ulcers in 62.5 per cent of experiments. Denuded areas in other parts of the same stomach healed readily. It seems significant that chronic ulcers in the experiments developed on the lesser curvature which is the usual site of ulceration in the stomach of man. The lesser curvature is the so-called "magenstrasse," or gastric street. It is at this area that the forces of gastric contractions converge and along which the gastric chyme is propelled in leaving the stomach.

Several other types of experiments were performed, and it was found that whenever the alkaline juices normally present in the duodenum were diverted from the region of the pylorus, ulceration usually occurred.

In order to determine what would occur if the alkaline juices were re-introduced to the area of ulceration, several additional groups of experiments were performed. In these, use was made of gastro-enterostomy, gastro-duodenostomy, duodeno-jejunostomy and other similar procedures. Each of these operations gave some degree of mechanical protection to the ulcer and, by the re-introduction of the alkaline juices to the region, decreased the acidity of the gastric chyme. In all such experiments healing of the ulcers ensued.

Analysis of the data of these experiments suggested that in each case the withdrawal of the alkaline juices from the stomach and intestine into which it emptied induced the for-

mation of peptic ulcer and the site of the ulceration in each case was determined by the point at which the forces of acid ejections converged. Healing ensued when the alkaline juices were re-introduced to the region of the ulcer and when the forces of the acid ejections of the gastric chyme were diffused or counteracted.

In the experiments on animals the chemical and mechanical factors mentioned above seemed to explain the formation of typical subacute and chronic peptic ulcers. Both grossly and microscopically, these ulcers were almost indistinguishable from the peptic ulcers found in man. However, because of the difficulty of applying accurately the data of experiments on animals to clinical problems, an attempt was made to determine if patients with peptic ulcer might show any unusual relationship between the acid gastric chyme and the alkaline juices in the duodenum not found in normal individuals.

Recently I made a preliminary report of a small group of experiments on patients with peptic ulcer controlled by a similar group of patients who had no evidence of peptic ulcer. The groups are not large enough for the findings to be conclusive, but they were interesting in that they seemed to substantiate the data of the experiments on animals.

Briefly, the experiments consisted in the simultaneous withdrawal of samples of gastric and duodenal chyme following the ingestion of a test meal. In persons without peptic ulcer no free hydrochloric acid was recovered in samples of the contents of the duodenum and the total acidity of the material was low and relatively constant in spite of the usual wide variations in the acidity of the gastric contents. In persons with peptic ulcer free hydrochloric acid was found in the samples from the duodenum, and the total acidity of the material was more variable and much higher than that in persons without peptic ulcer. Certain other findings suggested that dysfunction of the pylorus might be at least partially responsible for the findings in cases with peptic ulcer.

Besides these purely experimental data, certain facts about peptic ulcer have been learned through clinical experience. One of the most characteristic features of peptic ulcer, particularly ulcer of the duodenum, is the period-



icity of its symptoms. Periods of pain alternate with periods of freedom from any trouble. Studies by Caylor suggest that during the periods of freedom from symptoms the normal healing power of the gastro-intestinal tract predominates over the destructive processes. When the destructive forces gain the ascendancy over the repair processes, symptoms reappear. Rapid destruction of healing granulations may lead to the hemorrhages which are so common in patients with peptic ulcer.

It is generally recognized that the highly-strung, easily-excited and hyperesthetic type of individual is more apt to have peptic ulcer than other types. Symptoms from the ulcer are frequently exaggerated during periods of excessive nervous tension, activity or strain, and not infrequently disappear when the patient is put at rest.

The acidity of the gastric chyme was one of the first facts seized upon as bearing a causative relationship to peptic ulcer. Gastric analysis was devised as a diagnostic measure to determine the degree of gastric acidity. The administration of alkalis offered an apparently rational method of controlling the acidity and was adopted as a routine therapeutic measure. Experience has shown, however, that gastric analysis, in so far as the determination of the gross acidity of the gastric chyme is concerned, is of no diagnostic value in cases suspected of peptic ulcer. The administration of alkalis does relieve the symptoms and lower the acidity of the gastric chyme temporarily, but is followed by a rise in the acidity to a higher level than that before the administration of an alkali. Apparently the most satisfactory non-operative method of controlling gastric acidity is the frequent ingestion of small meals composed of foods that do not stimulate excessive secretion of acid by the gastric mucosa. Of these foods, milk, cream and egg mixtures are the most satisfactory. Incidentally, Boyden has shown experimentally that an egg yolk and cream mixture stimulates the discharge of bile into the duodenum. The significance of this finding is apparent.

Experience has shown that certain operations, both direct and indirect, are useful in treating cases of peptic ulcer. Gastro-enterostomy, an indirect type of operation, is one of the simplest and most useful of the surgical

measures. Direct operations, combining resection of the ulcer with plastic procedures on the pylorus or stomach are useful in certain cases.

One very important feature of peptic ulcer is the distinct clinical difference between ulcers of the stomach and ulcers of the duodenum, particularly in regard to the treatment and the prognosis. The medical treatment of ulcers of the stomach is much less satisfactory and effective than of ulcers of the duodenum. An ever-present danger in cases of gastric ulcer is the possibility of malignant change. Recently, MacCarty and Alvarez and MacCarty have reported studies on the relationship of the size of gastric ulcers to the occurrence of carcinomatous changes. They state that any ulceration of the stomach which has attained a diameter of 2.5 cm., approximately the size of a quarter, is almost certainly malignant. Their smallest cancerous ulcer with lymph-nodal involvement was only 1.2 cm., in diameter.

With this short summary of some of the experimental and clinical data on peptic ulcer, I shall briefly outline some of the more generally accepted principles of the management of peptic ulcer. There is considerable controversy over the medical *versus* the surgical treatment. In clinics where all cases of peptic ulcer are seen by both medical and surgical consultants, however, certain general principles of management are followed. Of especial importance, ulcers of the duodenum are managed differently than ulcers of the stomach.

*Duodenal Ulcer.* The patient with a simple, uncomplicated duodenal ulcer is usually given the so-called medical treatment. Rest in bed at first may or may not be prescribed. A fairly rigid and standardized diet of the type described by Sippy is given for a time, usually with the addition of alkaline powders. The diet is then gradually increased in amount until the caloric requirements of the individual are satisfied. Either frequent small meals or a "milk-and-cream" mixture between meals is prescribed for a period of several months. In prescribing medical treatment the economic status of the individual is an important consideration. If the patient is unable to follow this regimen because of financial or occupational reasons, it is an obvious waste of time

to prescribe it. Some other form of treatment must be advised.

Surgical treatment is indicated in certain cases: first, those who elect it because of unwillingness to adhere to a dietary regimen or because their economic status precludes their adherence to it. In the next group are those cases in which medical management has failed. What constitutes a failure is debatable, but certainly the continuation or recurrence of symptoms after several weeks or months of treatment suggests failure. The next group of patients probably deserves surgical treatment immediately. I speak of those in which there is hemorrhage or obstruction. Hemorrhages are apt to recur unless the ulcer is excised. Obstruction with gastric retention will yield only rarely to any treatment other than surgical. Perforation, of course, necessitates immediate operation.

*Gastric Ulcer.* Fortunately ulcers of the stomach are much less common than ulcers of the duodenum. An ulcer of the stomach does not respond to medical treatment as readily as a duodenal ulcer. Several additional factors should be carefully weighed before deciding upon the treatment. Of these, the age of the patient, the duration of the disease and the size and character of the ulcer roentgenologically are important. In a young individual with a small ulcer of recent origin medical management should be given a trial if possible. In older persons, in cases where the ulcer has been present for a long time and in cases where the ulcer is large or presents a ragged appearance roentgenologically, surgical treatment is definitely indicated. Only by prompt exploration will the case of early cancer of the stomach be differentiated from the benign ulcer and given the chance offered by early resection of the growth. Temporization with cases of gastric ulcer until the diagnosis of gastric carcinoma is certain deprives the patient of practically his only chance for a cure.

It is impossible at this time to discuss the details of either the medical or surgical management of peptic ulcer. The Sippy management and its modifications are familiar to every one. The surgical measures employed are numerous. The gastro-enterostomy is probably the most common. For duodenal ulcer, excision of the ulcer together with the

anterior two-thirds of the pyloric muscle removes the ulcer cleanly. The resulting opening is closed by a suture line transverse to the axis of the intestine after the method of Judd or Horsley. Such a gastro-duodenostomy destroys the nozzle-like action of the pylorus, removes the diseased tissue, is accompanied by very little risk and is eminently satisfactory. For gastric ulcer, removal of the ulcer by local excision or by resection of the stomach is urgently indicated in order to minimize the danger from cancerous change. If inflammatory reaction or obstruction makes the operation hazardous or difficult, the resection may be accomplished in two stages.

#### SUMMARY

A brief resumé has been made of some of the author's previously reported experiments on the etiology of peptic ulcer. Analysis of the data suggests that in each case the withdrawal of alkaline juices from the region of the pylorus by surgical duodenal drainage induced the formation of peptic ulcer and accounted for its chronicity. The site of the ulceration in each case was determined by the point at which the forces of acid ejections from the stomach converged. Healing ensued when the alkaline juices were re-introduced to the region of the ulcer and when the forces of the acid ejections were diffused or counteracted.

Attention was called to the distinct clinical differences between gastric and duodenal ulcers. The general principles of the management of both types of peptic ulcer were briefly alluded to and the importance of both medical and surgical consultation in every case of peptic ulcer was emphasized.

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### THE ACUTE ABDOMEN.\*

By HARRY M. HAYTER, M. D., Abingdon, Va.

Abdominal pain is the constant and outstanding feature in all cases presenting the picture of "The Acute Abdomen." Nausea, with or without vomiting, is another fairly constant symptom. Tenderness and muscular rigidity may or may not be present, depending upon the actual site of the pathological process which is producing symptoms referable to the abdomen. If abdominal pain always signified intra-abdominal pathology which was amenable to surgical treatment, the problems of the physician would be greatly simplified. The fact that many non-surgical conditions announce their presence by abdominal pain emphasizes the necessity of close co-operation between the surgeon and the internist.

When one sees a case of this type, the first question is—is this case one for surgical or medical treatment? In answering this question an accurate history and thorough physical examination are essential. Snap-shot diagnoses on the part of the experienced physician are often correct, yet the reverse is equally true, and the individual who practices his art in this manner will sooner or later have just causes for regret. Laboratory findings are a great asset in arriving at a diagnosis; however, the clinical picture is the factor of primary importance, and rarely is one justified in disregarding this in favor of laboratory findings. X-ray examination is a valuable factor in differentiating between disease of the chest, genito-urinary tract, and acute surgical conditions of the abdomen.

I shall not attempt to discuss, yet will mention briefly a few non-surgical conditions which may at times simulate acute surgical conditions of the abdomen.

Disease within the chest may produce abdominal pain, especially if there is irritation of the parietal pleura. This is notably true in children. In such cases the tenderness is more superficial and deep pressure does not increase the pain as it does in peritoneal irritation. The patient's temperature is higher.

The white blood cell count is higher. The character of the respiration will often point to disease of the lungs.

Pericarditis, angina, and coronary thrombosis often cause severe epigastric pain. The patient with cardiac disease is usually found sitting up, while those with peritoneal irritation are more comfortable lying down. The character of the arterial walls and the blood pressure are factors of importance. Chronic passive congestion of the liver due to sudden decompensation of the heart often resembles gall-bladder and appendiceal inflammation.

Considering the above group of disorders, the necessity of a careful examination of the chest is apparent to every physician.

The gastric crises of tabes dorsalis may simulate acute intra-abdominal pathology. A past history of venereal disease, the reactions of the pupils, and a test of the deep reflexes of the lower extremities, together with the blood picture, will help in differentiating between the two conditions.

Because of its ability to imitate numerous disorders, uraemia has very aptly been referred to as "the proteus of diseases." A careful urinalysis and blood chemistry in questionable cases will solve this problem of diagnosis.

The occupation of a patient is always to be considered, as the abdominal symptoms of lead poisoning are well known. The characteristic change in the blood cells and the presence of the lead line on the gums would be suggestive of this possibility.

Prostatitis and especially acute seminal vesiculitis may cause severe referred pain in the abdomen. The importance of rectal examinations cannot be emphasized too greatly. I once heard one of my professors remark that the difference between an ordinary physician and a diagnostician was that the diagnostician always did a rectal examination.

Injury to the spine or ribs which involves the spinal nerves may give rise to acute abdominal pain and tympany. The pain of an early herpes zoster, before the appearance of the skin lesions with their characteristic distribution, also offers its problem of diagnosis.

Abdominal pain, nausea, and vomiting occur frequently in cases of diabetic acidosis. Careful histories and urinalysis are essential in order that many of these cases may be saved from some operative procedure.

\*Read at the meeting of the Southwestern Virginia Medical Society, in Galax, Va., September 16-17, 1929.

It is easy to enumerate diseases which often simulate acute surgical conditions of the abdomen, yet my personal experience has been that often when confronted with such a case the diagnosis is an entirely different and more difficult problem.

Acute infections of the kidneys, renal and ureteral calculi, offer themselves for differential diagnosis from acute surgical conditions of the other abdominal viscera. The character and radiation of the pain, tenderness in the flank and lumbo-costal angle, the presence of albumen, blood and pus, in the urine, and positive X-ray findings serve to incriminate the kidneys. Chills occur more frequently, the temperature is usually higher, and the white blood cell count is usually higher in kidney infections than in early acute infections of the appendix and gall-bladder. Nausea is a less constant symptom in kidney infections than it is in cases with peritoneal irritation. In spite of these diagnostic principles, many of us must plead guilty to removing innocent appendices and later learn that an obstructive pyelitis has broken loose and then see the urine loaded with pus and albumin. The patient with a ureteral or kidney colic is usually restless and moving about, while the patient with peritoneal irritation is quiet, because motion increases his pain. Intermittent hydronephrosis causes severe abdominal pain. Urinalysis may reveal nothing abnormal. The temperature and blood picture are not suggestive of an infectious process. Often there is a palpable mass in the kidney region. Cystoscopic examination establishes the diagnosis.

Acute gastro-intestinal disturbances of dietary origin must be kept in mind. Nausea, vomiting, and diarrhoea are outstanding symptoms. The abdominal pain and tenderness remain generalized in contrast to the localization seen with an inflammatory process of a limited area.

The acute surgical abdomen presents many difficult problems. When occurring during infancy and childhood, they are extremely important because of the high mortality rate in cases in which the true nature of the disturbance is not recognized. The child is much less resistant to a peritonitis than is the average adult.

The most common intra-abdominal lesion met with in the first decade of life is acute appendicitis. One very characteristic feature

of appendicitis in children is the early appearance of nausea. This is often absent in adults. The uncertainty of the diagnosis in children may at times be due to the anatomical position in which the appendix may be found, for often it occupies a position high beneath the liver when the descent of the caecum has been delayed. Again, as is frequently true in adults, it may occupy a position low in the pelvis.

One of the most serious emergencies occurring during childhood is pneumococcal peritonitis. Clinically, the disease may be divided into two types, an acute and chronic, or localized variety, the former being the more usual and fatal form of infection. This disease is most frequently encountered in young girls of the poorer classes and seems to be essentially associated with dirt and neglect. Intussusception is another very common cause of abdominal crises met with in early childhood. The characteristic findings are the presence of a palpable mass, the passage of blood and mucus without fecal matter, and the symptoms of an intestinal obstruction.

Congenital pyloric stenosis, while not so urgent a condition, still, in view of the failure of medical treatment to relieve this condition, must be included in the list of surgical emergencies of childhood. In this same group must be considered obstructions of the duodenum due to congenital abnormalities or to obstructing bands of adhesions.

Abdominal tuberculosis is rarely surgical, yet it may give rise to an obstruction which requires surgical treatment. Abdominal injuries, the presence of foreign bodies which perforate or lodge in the intestinal tract, may produce acute surgical conditions of the abdomen. Intestinal obstruction due to masses of intestinal parasites is occasionally encountered. Other conditions, such as diverticulitis, gastric haemorrhage, gastric ulcer, abscess of the liver and spleen and perforation of typhoid ulcers are possibilities, yet are rarely encountered.

A much greater variety of acute surgical conditions of the abdomen are encountered in adult life. An accurate differential diagnosis is very gratifying, yet of far more importance is the recognition of the fact that an acute surgical condition exists and that delay in treatment only spells disaster. Having eliminated the non-surgical disorders, it is much better to explore the abdomen than to wait for



later symptoms, which may make possible a diagnosis of the particular part involved, for too often the patient is then in collapse and surgical treatment of little avail.

In the acute surgical abdomen acute appendicitis is always to be considered. The typical case is familiar, yet the atypical case demands the same surgical treatment and will not tolerate delay.

Acute infections of the gall-bladder and bile ducts in the majority of cases, will to a certain extent, become quiescent and thus permit operation at a more favorable time. However, there does occur the occasional fulminating infection which goes on to perforation and peritonitis or to local abscess formation if not operated upon immediately. A few points of interest in the diagnosis of gall-bladder disease are the relative infrequency of this disorder in young adults, the history of digestive disorders and often of previous similar attacks, and the apparent relationship of multiple pregnancies and infections of the gall-bladder. In recent years the development of X-ray studies of the gall-bladder has done much to facilitate the diagnosis of cholecystitis and cholelithiasis.

Sudden acute pain in the epigastrium, a past history of indigestion, and a very rigid board-like abdomen, suggest an acute perforated gastric or duodenal ulcer. If seen early, there may not be an elevation of the temperature or white blood count. If the patient is in shock, the temperature may be below normal. The peritonitis is at first chemical in nature, yet, as ileus develops, becomes bacterial. Immediate surgical treatment is imperative. Each hour that passes decreases the patient's chance for recovery. If the perforation is so located that the repair is likely to result in obstruction of the duodenum or pylorus, a gastro-enterostomy is indicated if the patient's condition will permit this additional operative procedure.

Acute pancreatitis or mesenteric thrombosis may produce a similar picture, yet these conditions are rarely diagnosed until an exploratory incision is made.

Abdominal pain and distension, nausea, vomiting, persistent constipation and a varying degree of toxemia and shock, depending upon the location and duration of the disorder, are classical symptoms of intestinal obstruction. Fecal vomiting should be regarded as a sign of impending death rather than a symptom of intestinal obstruction.

Ruptured tubal pregnancies, tubal abortions, strangulated ovarian tumors and cysts and strangulated pedunculated tumors of the uterus form a group of surgical emergencies encountered in the adult female. In this same group one must also consider rupture of a pregnant uterus, a bleeding placenta praevia and premature separation of the placenta where there is an undilated rigid cervix, and other conditions which make delivery through the normal passage impossible.

Acute salpingitis is not a surgical emergency. If operated upon during the acute stage, the mortality rate is higher and there is greater danger of adhesions which may produce acute obstruction. Many of these cases will recover completely if given time.

One frequently encounters acute surgical abdomens, due to abdominal injury with rupture of a hollow viscus, the liver, spleen, or kidney. Septic emboli may produce abscesses of the liver, spleen, and kidneys. Again, abscesses of unknown origin are occasionally encountered within the abdominal cavity.

In strangulated hernia the diagnosis is apparent. In these cases it is important to avoid vigorous efforts to reduce the hernia. Operation is much less serious than a ruptured intestine or severe haemorrhage from a lacerated omentum. Intra-abdominal hernias are rarely diagnosed before an exploratory incision is made.

In any doubtful case, I would like to emphasize the importance of avoiding any purgative and of avoiding barium meals for an X-ray study of the intestinal tract. One authority has advised "when in doubt, operate." Dr. C. H. Mayo states that he has never seen a patient die as the result of an exploratory incision, while he has seen many die because one was not made.

### CESAREAN SECTION.\*

By ROBERT P. KELLY, M. D., F. A. C. S., Lynchburg, Va.

Some years ago it was my privilege to read before this society a paper on "Cesarean Sections, its Indications and Limitations<sup>1</sup>". Since that time there have been many advances in obstetrics and Cesarean section has not been neglected.

In deciding whether or not to do this operation, the indications and contraindications of

\*Read before the meeting of the South Piedmont Medical Society, at South Boston, Va., April 17, 1928.

1. *Virginia Medical Monthly*, July, 1922, page 215.

an earlier day no longer obtain. Formerly it was only a question of the classical operation, which some obstetricians have now almost entirely abandoned. It remained for DeLee, to whom we owe many other advances in obstetrics, to develop the present improvement in Cesarean section, viz., the operation known as laparotrachelotomy, or the cervical Cesarean section.

For the entire technique of this operation, I refer you to the *Journal A. M. A.*, March 14, 1925; or the 1925 Year Book on Obstetrics and Gynecology.

Indications for Cesarean section are usually classed as *absolute* and *relative*. The operation has been done for every complication imaginable and often has been done for no good reason whatever, except as the easiest way out of a difficulty. The indication is absolute when the C. V. diameter is  $6\frac{1}{2}$  cm. or less. With our present improved technique, this diameter might be extended to  $7\frac{1}{2}$  cm. An oversized baby in a normal pelvis also furnishes an absolute indication. Even a dead baby would not affect the decision in the absolute class, but, of course, otherwise does so.

The relative indication includes all cases with a C. V. diameter of  $6\frac{1}{2}$ , or  $7\frac{1}{2}$ , to 9 cm., and it is these cases that require the most careful consideration. About 80 *per centum*, if given a chance, will deliver spontaneously. In this class are included all cases in which Cesarean section is the safest method of delivery for both mother and baby. In cases where the C. V. diameter is 9 to 10 cm., normal labor is the rule.

The present indications and contraindications for Cesarean section are governed, to a large extent, by the *kind* of operation contemplated. In certain cases a classic operation might be very dangerous or even fatal to the patient, while a low cervical could be performed with reasonable safety.

The chief objections to the classic operation are its limitation to use in clean cases only, the complications (general peritonitis, dilatation of stomach, ileus, etc.), the danger of rupture of the uterus in possible future labors, and the large maternal morbidity and mortality.

Cesarean section is to be considered in the following cases:

1. Contracted or deformed pelvis;
2. Disproportion in a pelvis of any size;

3. Organic diseases (heart, lungs, etc.);
4. Abruptio placentae;
5. Malpositions;
6. Obstruction in birth canal by tumors;
7. Eclampsia;
8. Placenta previa.

Two of these conditions, eclampsia and placenta previa, deserve further attention. Eclampsia, *per se*, is not an indication for Cesarean section. These are poor operative risks. In cases of a primiparae with long tight cervixes, it is occasionally indicated, especially if there is any disproportion. The conservative treatment, as a rule, gives better results. The low cervical under local anaesthesia would be the ideal method of treatment in many such cases, especially the pre-eclamptic ones.

Like eclampsia, placenta previa is too often treated by Cesarean section. Some cases, to be sure, are better treated by this method; viz., primiparae with tight cervixes or primiparae or multiparae with complete or central placenta previa.

Since last October, the writer has delivered four cases in multiparae of complete placenta previa by perforating the placenta and putting in a 11 cm. Voorhees bag with two pounds of weight applied. The bleeding was well controlled in each case. All four mothers survived the delivery, one having been saved only with the greatest difficulty; three of the babies were born alive and one of the babies was still-born, dying a few minutes before delivery was started; one full term, living two days; another full term, left the hospital in good condition; and the fourth baby was born prematurely (seven months), living four hours. The mother in this case came in with a temperature of 102, and blood culture showed a streptococcic infection. This patient died very suddenly two weeks after delivery, not as a result of placenta previa but from the infection she had when admitted to the hospital.

These cases might have been better treated by Cesarean section, had not the possibility, or probability, of infection been too great. They had been examined at their homes in the country before coming to the hospital, and I was afraid to attempt Cesarean section. In case of the latter, I feel that a Porro would have been necessary, in which case the classic operation might have been preferable.

In organic heart or lung disease, Cesarean section is frequently the method to be chosen.



Local anaesthesia is especially desirable in these cases, but one should have very able assistants before attempting it.

In cases with excessive scar tissue in the cervix and vagina and with a history of loss of the first baby, a Cesarean section would offer the best hope of a good result. Also, in cases of habitual fetal death, it would sometimes be indicated a week or so prior to term. In the majority of cases of old primiparae, especially in malposition cases, this operation would be indicated. In questionable cases a test of labor will decide the matter.

There are many other conditions in which this operation is considered, but time prevents further detailed discussion. To sum up the consideration of indications, they are practically the same for the low cervical as for the classic operation, but with the low cervical there is an *extension* of the field of application, with a greatly reduced infant and maternal morbidity and mortality.

As for the contraindications of the low cervical, compared with the classic operation, it may be said that there are practically no cases in which a Cesarean section would ordinarily be the method of delivery most suitable where the low cervical operation cannot be done.

Let us make further comparison of the two operations. First, there is no obstetric operation which results in such large maternal mortality as does the classic Cesarean. This cannot be said of the low cervical operation, notwithstanding its wider application. Out of 330 consecutive laparotrachelotomies done at the Chicago Lying-in by DeLee and his staff, there were two maternal deaths. One was a patient in labor four days, weight 270, blood pressure 208. The other was a case of ether pneumonia. There were 328 babies born alive, two being dead before operation. Over the same period of time covering the 330 laparotrachelotomies, there were 136 classic Cesareans by the same operators, with seven deaths, over 5 per cent. Two died from peritonitis, three from toxemia of pregnancy, one from heart disease, and one from abruptio placentae. These were presumably clean cases.

In the classic operation, the mortality in favorable cases is given by different authorities as from 2 to 8 per cent as a minimum. Others put it much higher, even to 27 per cent. Williams puts it at from 2 to 8 per cent in

clean cases, depending on how long the patient has been in labor, and other considerations.

The low cervical section has the following advantages over the classic operation:

1. A real test of labor may be given.
2. The operation may be done after other means of delivery have been attempted, and thereby would make craniotomies on living babies unnecessary.
3. The danger to mother and child is much less.
4. The patients have more the feeling of non-operative cases; they have very little vomiting, nausea or gas.
5. The intestines, omentum and peritoneum are not handled, consequently there is less shock.
6. Hemorrhage is less frequent and more easily controlled.
7. Formation of adhesions is reduced to a minimum.
8. The danger of ruptured uterus in future deliveries is slight.

I should like to add that I have delivered, by this method, three patients who formerly had the classic operation and each one has told me that, from the patient's point of view, there was no comparison, in favor of the low cervical operation.

Results of this operation in my own cases have been most satisfactory. In eighteen deliveries (by this method) in the past five years, I am able to report eighteen living mothers and babies. In addition to these, I have operated on two cases brought in by other physicians, in which the *only* hope was to save the baby. These were cases of eclampsia, one of fourteen hours and the other of twenty-four hours duration, both in extremis, both primiparae one with a definite disproportion and tight cervix, the other with a badly deformed pelvis. Both babies survived.

The indications in my eighteen cases were as follows: Four cases had a former classic Cesarean, two cases were primiparae with extreme toxemia and rigid, undilated cervices. The others were primiparae, two over forty years of age, one a breech. All of these cases, except one fifteen days past maturity, were given a test of labor varying from eight to twenty-four or more hours. None of my cases have had any complications, all having left the hospital on the thirteenth or fourteenth day, with two exceptions. One of these patients

had phlebitis and was in the hospital four weeks. She came in with pyelitis. The other was my last case. She was a patient who had infantile paralysis at eighteen months of age and had not walked since. She could have gone home earlier but for this condition. She, too, had pyelitis on admission, was in labor and had a blood pressure of 200, albumen 4 plus and many granular and hyaline casts. The deformity of her pelvis prevented delivery from below; accordingly, although she weighed over 200 pounds, a low cervical was performed.

The points I desire to emphasize especially are:

(1) The opportunity in the low cervical operation of giving our doubtful cases a real test of labor. If we do this we will perform fewer such operations.

(2) The possibility of doing a low operation with reasonable safety on cases which are probably infected.

(3) The patient may subsequently be permitted to bear children without Cesarean section.

(4) The mortality is less than the average maternal mortality for all cases in Virginia.

Since the above was written, the writer has performed three low cervical Cesarean operations under spinal anesthesia and wishes to commend this form of anesthesia for your consideration in cases in which any form of inhalation anesthesia might be hazardous, especially in heart and lung diseases.

1112 Church Street.

## INFECTIOUS MONONUCLEOSIS—WITH A CASE REPORT.

By HAROLD W. POTTER, M. D., Newport News, Va.

Infectious mononucleosis, a condition in which the haemopoetic centers are involved, is still sufficiently uncommon to be of more than passing interest. The case reported here, which was not correctly diagnosed until after the patient's recovery, baffled some of the best internists in Paris. The similarity of the blood picture to that of acute lymphoid leukemia is very striking and in some cases only the spontaneous recovery of the patient differentiates it from the practically always fatal leukemia. While many of the patients with infectious mononucleosis have an angina involving the mouth and throat and all of them show a tre-

mendous increase in lymphoid elements in the blood picture, the gradual increase in the total white count differentiates it from agranulocytic angina.

### CASE REPORT

The patient, Mr. —, a Jewish American, age 47, was seen by me in the outpatient department of the American Hospital of Paris in August, 1927. He had been traveling in the Italian Alps and while there developed a sore throat and a painful mouth.

He suffered so much that he came to Paris for examination and treatment.

*Family History:* Revealed nothing of importance.

*Past History:* The patient had been in excellent health and had had no serious illnesses and no operations.

*Present Illness:* Patient had been traveling in Europe for about two months previous to this illness. While in the Italian Alps, he began to have severe headaches, and concurrently with these headaches he developed a sore throat. Swallowing became difficult because of the pain, and his gums began to bleed when he attempted to take food.

He became alarmed and hastened to Paris to the American Hospital for examination.

*Physical Examination:* The patient examined by me in the outpatient department was a white male, well developed, with no apparent abnormalities of gait or posture. His weight was 148 lbs.—usual weight 150 lbs.

*Head and Neck:* Distribution of hair normal. No pathology of the skin or bones of the head noted. Ocular movements were normal. Eyes reacted to light and accommodation normally. Examination of the throat revealed a red and angry mucous membrane. The mucous membrane of the mouth was infected and a slight amount of blood was oozing from the gums and the upper and lower incisors and canines. The spleen was slightly enlarged. No other masses could be made out. The extremities and genitalia were normal.

The temperature was 101° F. The patient was admitted to the hospital following this examination.

### *Laboratory Reports:*

*Urinalysis:* On admission: Color—amber; specific gravity—1.025; albumen—trace; sugar—none. No red blood cells or casts.

Subsequent urinalysis revealed no change in these findings.



*Blood Examination:* On admission: Red blood—4,500,000; white blood cells—12,500; haemoglobin—80 per cent; Bordet Wassermann—negative; polys—60 per cent; large lymphocytes—25 per cent; small lymphocytes—15 per cent.

On day following admission: White cells—15,000; polys—50 per cent; large lymphocytes—35 per cent; small lymphocytes—15 per cent.

On third day: White cells—25,000; polys—20 per cent; large lymphocytes—50 per cent; small lymphocytes—30 per cent.

On fourth day: White cells—56,000; polys—5 per cent; large lymphocytes—70 per cent; small lymphocytes—25 per cent.

On fifth day: White cells—60,000; polys—5 per cent; large lymphocytes—71 per cent; small lymphocytes—24 per cent.

*Progress of Case:* Upon admission to the hospital the patient's temperature was 101° F., and ranged between this point and 104° F. during his stay in the institute.

The headaches became more severe, the bleeding from the gums became more marked, and the sore throat more painful. Supportive and symptomatic treatment was instituted by Dr. L. S. Fuller, the consulting internist on the case. A diagnosis of acute lymphoid leukemia was made and substantiated by a prominent haematologist of Paris. The patient's family was given a prognosis of death in a week or two at the best.

The patient's wife decided to move him by ambulance to Switzerland and have his case studied by a prominent Swiss haematologist. This was done and by letter he confirmed the diagnosis of acute lymphoid leukemia and also gave a fatal prognosis.

We heard no more concerning the patient until the spring of 1928 when he walked into the hospital and informed us that about five weeks after his arrival in Switzerland he began to improve, his blood picture returned to normal and he gradually convalesced to good health.

A blood count taken at the American Hospital at this time was normal both in regard to the absolute and relative relationships of his white cells. His spleen and liver were not tender and were normal in size. His throat and mouth were normal.

This case was undoubtedly one of infectious mononucleosis and resulted in the usual recovery.

This case is interesting because of the diagnostic problem it offered, its sudden onset, and the blood picture and physical findings suggesting an acute lymphoid leukemia. The treatment both in Paris and Switzerland was supportive and symptomatic. The patient went on to a spontaneous recovery with no special treatment.

If the literature published on Infectious Mononucleosis in 1927-'28 had been available at the time this case was seen, a more accurate diagnosis might have been made.

70 *Thirty-Third Street.*

### STERILIZATION BY VASECTOMY UNDER STATE LAW.

By H. COLLES GRANT, M. D., Staunton, Va.\*

Sterilization of the insane or feeble-minded must necessarily be done with as little fright and inconvenience to the patient as possible, lest the patients to follow stampede and refuse to be operated.

The method adopted by Dr. De Jarnette, Superintendent of the Western State Hospital, is the scrotal route in preference to the external ring route, as advocated by some surgeons.

A modification of the method employed by Dr. R. L. Dickson, of New York, is followed: The penis is strapped to the abdomen, and the scrotum and surrounding skin are painted with iodine. The burning of the iodine is usually the only pain complained of by the patient during the operation. The vas is next located, and is found lying under the cord which contains the veins, etc. It is drawn to the top by the finger and then grasped with a small Allis forceps, novocain having previously been injected into the points where the forceps grasp. The vas can be recognized by its hard, stringy feel and occasionally can be seen shining through the skin of the scrotum. More novocain is now injected over the line of incision and the vas exposed. The incision need not be over an inch long. Blunt dissection is then used to expose the vas, thus avoiding unnecessary bleeding. The vas is then grasped in a pair of forceps and ligated in two places with No. 8 braided silk, and a section removed. Hesitate long enough to be sure that there are no leaking blood vessels, for this will save a lot of unnecessary worry later.

The wound is then closed and dressed, and

\*Dr. Grant was at the Western State Hospital at the time of submitting this paper but is now with the United Fruit Company, New York.

by the next morning the patient is able to be up, wearing a suspensory for support.

There is no mutilation to this procedure, two stitches close the wound, and after two weeks you can scarcely find a scar. The sexual desire is not interfered with and orgasm is complete.

After sterilization, the feeble-minded, and some of the insane, may be allowed to go home where they will not be an expense to the State, and will not be a menace to the public by giving to posterity a line of feeble-minded or insane children.

## Correspondence

### An Explanation of Part of the Report of the Committee on Training of Laboratory Technicians.

RICHMOND, VA.,  
DECEMBER 27, 1929.

TO THE EDITOR:

The special Committee of the State Society appointed to investigate the laboratory technician situation in the state, in trying to keep information about the schools where these workers may be well trained, has seen fit to criticise one of them as inadequate. In our report to the House of Delegates at Charlottesville, which is published on page 550 of the November, 1929, issue of our state journal—the VIRGINIA MEDICAL MONTHLY—the location of this is given but it is not called by name. Out of fairness to other private well conducted laboratories in Clifton Forge, it seems wise to now state that the criticism is aimed solely at the Alleghany School of Laboratory Technic conducted by one who is not a physician. Surely our state cannot afford to fall below the standards set by the American Society of Clinical Pathologists for training schools for laboratory technicians and hence this Committee, in trying to maintain standards, finds it necessary to be critical.

For the Committee:

CHARLES PHILLIPS, M. D.,  
*Chairman.*

### Better Health for Beginners in School.

RICHMOND, VA.,  
DECEMBER 23, 1929.

TO THE EDITOR:

During the past few years, the Bureau of Child Health of the Virginia State Department of Health, under the direction of Dr.

Mary E. Brydon, has been endeavoring to perfect a plan whereby children who are to enter school for the first time can be given a health examination and the treatment needed to put them in better physical condition before they start to school. Numerous conferences have been held with committees of the Medical Society of Virginia, the Virginia Pediatric Society, and the school superintendents appointed to work with the Bureau of Child Health.

It seems generally agreed that the examinations and treatment should be in the hands of the family physician rather than in those of State employed clinicians. Last year 276 clinics were held by family physicians, and 1,650 children were examined. Incidentally, 1,532 of these children were found to have one or more defects. Last year's work demonstrated the need for a more definite plan of procedure, and in order to further the development of such a plan, a joint meeting of the three committees mentioned above was held in the offices of the State Health Commissioner, Dr. Ennion G. Williams, November 26, 1929. At this meeting, after a frank discussion of the situation, the following resolutions were adopted:

"RESOLVED, That the responsibility of the health examinations of the pre-school children be placed in the hands of the Division Superintendent of Schools of each county and the local board of health and that they cooperate with the local doctors.

"RESOLVED, That we endorse the report of the Child Welfare Committee of the Medical Society of Virginia\* and that we recommend a fee to be charged for the health examination of the pre-school child such as the doctors and superintendents see fit to recommend.

"RESOLVED, That we endorse the blue and two white card system now in use by the State Department of Health for the health examination of the pre-school children." (The white cards are for duplicate records of the history and physical examination, one to be kept by the doctor, one to be sent to the superintendent of the schools. The blue card is the record of the examination to be taken by the pupil to the teacher on the first day of school.)

The definite assumption of the responsibility for this program by the school superintendents and the local boards of health should give it a powerful impetus. Such a movement promises much for the improvement of child health, for the improvement of school attendance and learning ability of the child, and for the furtherance of the idea of the need for periodic examinations of children in the minds of both the laity and the medical profession.

Early correction of physical defects undoubtedly will prevent a great deal of physi-

\*Virginia Medical Monthly, November, 1929, page 547.



cal disease and mental anguish, and proper advice concerning food, habits and general living conditions, given to the mother by the doctor, will promote better physical and mental health. It is work of this sort that the physicians must assume if they wish to prevent so called "State medicine."

BASIL B. JONES, M. D.,

*Chairman of the Joint Committee.*

### **Informal Comment on Doctor Gill's Navy Medical Article.**

CINCINNATI, OHIO,

DECEMBER 16, 1929.

TO THE EDITOR:

Having read with much interest and understanding, Dr. W. Armistead Gills' article in the December, 1929, *VIRGINIA MEDICAL MONTHLY*, "Why The Health of the U. S. Navy Cannot Be Compared With Civilian Health and Other Military Institutions," a little friendly comment may be of interest to civilian practitioners of medicine. This is based on some twenty years' residence in Washington, D. C., in the shadow, as it were, of Army and Navy headquarters, plus about ten years as an officer of the regular Army Medical Corps. From this broad personal observation and experience with both Army and Navy medical conditions, I know whereof I speak. The same points Dr. Gills makes with regard to Navy Medical Service, apply almost identically with the Army Medical Service. I know Dr. Gills to be honest and sincere in his efforts to improve the quality of Navy Medical Service, and I agree with the points he makes most emphatically; but I must sadly feel he assumes a Don Quixote role in any effort to reform the Army or the Navy, Line or Medical. It simply cannot be done, and it would be just as easy a task to make John Chinaman as a Nation see and live as we do, as to change one spot on the military leopard. Step from civil life into the Army, or into the Navy, and you immediately step into a foreign country. From that day, you become a Roman and see and do as the military Romans do, or you simply never get to "belong;" or to put the proposition another way, get in step and stay in step with the military machine always and for always, or you are hurtled back into civil life, disillusioned perhaps; certainly wiser in more ways than one. Military and naval "experience" is a great teacher for the "cit."

General William Mitchell of Air Service fame was unfortunately twenty years ahead of his time, and foolishly tried to impress his Air views on the military machine. They promptly crucified him with all military power and pomp. It is true that General Mitchell's efforts brought some improvement in the Air service of both Army and Navy, but it surely wrecked the General's military career. That has been the fate and will be the fate of any well-intentioned reformer of either Army or Navy, who creates enough stir; and beyond doubt, if Dr. Gills' efforts to reform the Navy Medical service annoy "higher authority" enough, they will crush him. Being on the retired list of the U. S. Navy confers no immunity from lethal punishment, as I hope Dr. Gills knows.

There are ways and ways to punish an officer, both in the Army and in the Navy. A naval medical officer of good training, earnest and sincere, was detailed some twenty years ago to St. Elizabeth's Insane Asylum in Washington, the great Government insane institution, with the idea in particular of making a special study of Navy insane patients there. This doctor was a student and a hard-working one; and he soon not only had a good working knowledge of insanity in general, but, in particular, special knowledge of all the details on practically every Navy insane case in St. Elizabeth's. Some of these cases of alleged insanity he found not to be insane at all; some were temporarily unbalanced from brutal treatment and persecution by higher officers at various navy stations; and some were simply railroaded to St. Elizabeth's as extra-legal "punishment." Some of these Navy cases were improperly diagnosed and improperly treated. The young naval surgeon, as he began to study these cases, began to write articles for publication in military-naval medical publications and perhaps in other professional journals, describing some of his discoveries. Did the Navy Medical high command welcome discovery of these "mistakes" and suggested measures for their correction, etc.? Not noticeably so. The young navy surgeon who took his duty too seriously, became a marked man and he has been a marked man to this day. Promotion in the Navy is by "selection" in the higher grades. If you stand in with higher authority and have made no influential ene-

inies, you may go up in due course to higher ranks by "selection," but not otherwise. This young Navy surgeon went up as far as he could go by seniority promotion, and then he struck the "selection" barrier, and there he has remained ever since, while some hundred junior medical officers have been "selected" (promoted) over him. Naturally, this young Navy surgeon feels he has been wrongfully treated; he only did his duty, but he did it too faithfully to suit higher authority.

The situation in the Army is precisely the same.

Medicine and Militarism can be made to mix, but not to the advantage of Medicine. The medical officer in both Army and Navy becomes somewhat of a hybrid; part doctor and part military man; and the longer he remains in Service the more military and the less medical he becomes. Military rank is everything in the Service. One great trouble today is that the Army and Navy simply cannot obtain competent doctors to man their forts and ships. A decade or so ago when vacancies were few and far between, only a well educated, well trained young doctor, physically perfect, had any chance to "pass" the entrance examinations for the Army and Navy medical services. To pass the Army examination in those days was considered a real feat by the young civilian physicians, and only the higher standing graduates of hospitals had even the courage to attempt them. To pass the Navy examination in those days, was considered almost as difficult a feat. Certain physicians in Washington conducted a most lucrative Army-Navy Quiz for the sole purpose of preparing hospital graduates for Service examinations. In 1908, for example, some 170 young physicians, many of them Quiz prepared, went up for the Army examination. Less than eighty were found physically qualified first; if physically qualified, then you were allowed to take the professional qualification examination and not otherwise. Of the eighty odd candidates, about sixteen passed all professional subjects with two or three promising candidates admitted to the Army Medical School, subject to re-examination in deficient subjects. Then followed a grilling course at the Army Medical School, where some twenty-nine out of thirty-five finally made the grade. The Navy system was somewhat alike, except that the candidate was told from day to day

whether to present for the next day's examinations; if deficient at any stage, he wasn't told to come back for more; but to go home.

It became impossible for the Navy to man its ranks this way, as so many young physicians became disgusted with Navy life and resigned after a year or two at most. Then the Navy adopted a cradle-robbing expedient, whereby the higher standing senior students in leading medical schools were offered a commission as navy doctors immediately upon graduation from medical college. Then they were sent to various Navy hospitals for hospital work and polishing up in the duties of a naval surgeon. From patriotic motives, thousands of doctors flocked to both the Army and Navy for the World War; but as soon as peace was declared the great majority had had their fill of military life and got back into civil practice again. The bars for entrance to the regular Army and Navy medical corps were lowered and then some; they took anybody and everybody with an M. D. degree, and some got in with less than that, one or two rank cultists making the grade in some way or other. Since the World War, the Army medical corps has been almost entirely depleted of ambitious, competent doctors; and there remain only the young medical student route medical officers, and a sundry assortment of civil practice failures, who looked upon Uncle Sam as a heaven-sent surcease from the competition of present-day medical practice. You couldn't pry one of those old boys loose from his newly acquired Government job with a load of dynamite; and by the same token they couldn't hold the ambitious, competent doctors in Service, who knew they could stand up and make good in civil practice. Today, the Army Medical Corps at least contains hundreds of medical officers who would resign tomorrow if they just saw an opening in civil practice; and no doubt the Navy is in the same fix. Of my own class of thirty-five members at the Army Medical School, all but two or three perhaps were physicians who had attempted civil practice first and lacked the stamina to stay with it. By a queer turn of fate, one of the "discards" sent back into civil life is today one of the leading orthopedic surgeons of the country, while another who had too much speed, social and otherwise, to please the Medical Corps high command, is today a leading New York surgeon. So it goes. One highly trained



Eye, Ear, Nose and Throat specialist vainly sought court action to force the Army to accept his resignation a year or two ago.

Today, the Army has adopted the Navy system of medical cradle robbing; the higher standing senior students in leading medical colleges are approached with offers of Internships in Army hospitals, at what must look like BIG MONEY to the average medical student. A certain percentage of these recruits, as with the Navy, will succumb to the allurements of military medical service and go in the permanent establishment.

Today an Army commission, Line or Medical, is good for just one year or less. Any officer who in any way incurs disfavor of superior officers may be arbitrarily and automatically placed in "CLASS B," and railroaded from the Service branded for life with the stigma of "Unfit and professionally incompetent." There is no appeal from this arbitrary and usually malice-inspired official decapitation. Civilian doctors entering the Army are uninformed of the practical workings of this unjust and prussianistic system.

How can either the Army or the Navy personnel expect first-class medical service from half-baked young medical students, whose medical training is finished up by medical officers, who themselves were never competent medical practitioners? The Army medico is held in poorly disguised contempt by the Line Officer, and merely tolerated as a necessary evil; and Navy snobbishness is still worse. Army and Navy officers who have the wherewithal to pay the fees of competent civilian doctors, never bother about FREE military medical service when they can obtain for themselves and families the services of trained doctors, surgeons and specialists in civil practice. Who can blame them? This hurts the pride of the military medical officers of the true military caste, who speak with scorn of the vulgar "civilian practitioner." If any ordinary doctor doubts this state of affairs, just let him walk into the average army or navy post and see if any fatted calf is killed for him. Of course, if a Mayo or some other civilian doctor of eminence essayed the same, it would be a different proposition.

Both in the Army and the Navy, the medical high command realizes that something beyond military life and rank is necessary to make a competent doctor; and from time to

time selected medical officers are sent to the various medical centers to take post-graduate work in the various specialties. This helps, of course, but of what avail is it for a man to perfect himself say in Surgery; or as an Eye, Ear, Nose and Throat specialist; and then be assigned to duty say with a Field Hospital, or an Ambulance Company; or assigned to some jungle post in those dear old Philippines; may Japan come and get them soon if not sooner. An ambitious Army medical officer took his degree at the Rotunda hospital in Ireland, studying for about a year at his own expense to become an Obstetrician; and then was assigned to an Army post that averaged about two and one-half confinements per annum. One of the most competent oculists ever in the Army aroused the jealousy of his Army confreres by his superior attainments; and as a reward was detailed to a God-forsaken, all but abandoned old Indian fort in the wilds of Arizona. The "pressure" produced his resignation in disgust, and today he is one of the leading oculists of the Pacific Coast; the Army's loss and civil practice's gain. Another medical officer perfected himself as an oculist in Vienna and Berlin; and on return to this country was rewarded by assignment to a post where one refraction a month was a big month's eye work. So it goes, in the Army and in the Navy. Is it any wonder that the average military medical officer loses ambition and everything else worth while in a doctor? All he has to do is to keep in step; do nothing and say nothing to offend a superior; work or loaf along, he gets the same pay check from month to month; and in due course will be promoted by seniority.

What are we going to do about this unhappy situation? How are we going to give the Army and the Navy better, more humane medical service? Nothing is my verdict. It cannot be done.

Dr. Gills tells us how to attract the BEST doctors to the Navy, and to the Army also. You cannot do this by anything the military service has to offer in peace time. Go to any doctor who is becoming established in private practice and try to talk Army or Navy to him. He cannot see it for a minute. The only doctor you can interest in military medical service, is the young medical student just out of college or hospital—with no money to start practice on; no opening in sight; and perhaps

with a small family and the wolf beginning to sniff at the door. This young doctor may listen to the allure of military medical service. Then approach the doctor temperamentally or otherwise unfit for the competition of private practice; whose practice, if any, is dwindling instead of increasing normally; and he may grasp at the "opening" as a drowning man grasps at a straw. Get him in the Service and he straightway finds himself associated with hundreds of other civil practice failures; all blaming this and that for lack of success; all disillusioned with the glamour of military service as is; all secretly hankering for civil life again if they but dared to take the leap. Sprinkle in with this aggregation a certain number of young medical students, inexperienced and untrained in medical practice; and you have an *esprit de corps* that is conspicuous principally by the utter absence of the *esprit* portion. It is every dog for himself and Heaven look after the hindermost.

Pay increase won't solve the problem. Both Services work propaganda overtime for pay increase; they hornswoggle Congress into one pay increase and then start a new propaganda for more pay. The average Army and Navy medical officer today is paid far more than he would ever earn in private practice; but freedom is something you cannot buy with money; and the average medical officer, unless all hope and ambition is dead, secretly longs, ever longs for the freedom of civil life and practice; freedom from the irksomeness of military restrictions, customs and life.

Get "in bad" with a superior officer in either the Army or the Navy, and he will spend more time figuring ways and means to torture and to crucify you by slow degrees than the Chinese ever thought of. There is something inherently cruel about any military system; and if there is any way to immunize the under dog from this mistreatment by higher rankers, I do not know how it is to be done.

Annual Health Reports of the Army and Navy Surgeon-Generals are a total loss for all practical purposes. They show just what these gentlemen want to show; and they do not show what they do not want shown. If they want black where white should shine, black it is; and *vice versa*. As a rule, Army and Navy health statistics look big on paper; they are made that way on purpose. Padded would be

too rough a term; just illustrated to convey the precise picture "higher authority" desires.

Readers may recall what wonderful statistics the Panama Canal Zone showed. Statistics showed that you lived longer and better in Panama than in New York, Washington, or most any old U. S. A. city. Wonderful work by the Army Medical Corps, when it is recalled what a death trap Panama used to be. How did they do it? Well, if you happened to be working in Panama and came down with illness or injury that appeared would be fatal, you need never worry about dying in Panama. No sir. You were promptly bundled on the first outgoing ship and sent right away from that place. If you insisted on dying, all right; but that death was not going to be chalked up against Panama. If you died in New Orleans, your decease went to spoil the health record of New Orleans; if New York was where you died, New York had to take the credit for your death. Of a verity, those Panama statistics were and are wonderful. If you listened to Army propaganda, it was actually healthier for a white man to live in the Tropics than in the Temperate Zone. Colonel Charles E. Woodruff, one of the greatest scientists who ever honored the Army Medical Corps with his presence, tried to allege as to how this was all wrong; that the white race would never be able to colonize the Tropics successfully. This was most decidedly not what Army "higher authority" desired. The Tropics had wrecked Colonel Woodruff by this time; and the Army Medical Corps neatly crucified Colonel Woodruff by sending him back for more Philipppines. In one way or other, they will crucify any officer who too urgently and too persistently utters views that are not officially desired.

The Average Mr. Congressman knows nothing about the Army or the Navy; much less about Annual Health Reports; and he is too busy with matters of State, and with mending his political fences at home, to bother about whether Private Smithers of the Navy is diagnosed rightly or wrongly. If Private Smithers dies, bury him according to regulations; if he becomes permanently disabled, exitus him from the Service in the manner provided for by Army or by Navy regulations. Then get another able-bodied recruit to take Private Smithers' vacancy. And that is that.

If Private Smithers dies because some medi-



cal officer wrongly diagnoses his case, that is naturally to be regretted, but the medical officer's pay goes on just the same.

Suppose you follow Dr. Gills' suggestion and write your Congressman all about it; of which you really know nothing except what Dr. Gills has so ably outlined. His secretary will acknowledge your communication with a neatly typed form letter; and it is doubtful if the Great Man ever sees your letter unless you are somebody in the District.

Surely President Hoover is much interested in both health and law enforcement; but try to get a letter before President Hoover personally. The System takes care of that; and your time and energy is a sheer loss.

Theoretically then, Dr. Gills' suggested remedy is excellent; well thought out and most commendable.

But in Practice It Simply Cannot Be Done.

If any Super-Man of a Doctor can fashion any method to break through this military-naval system and improve the medical service of either Army or Navy, I humbly take my hat off to him. And I hope he is a Virginia doctor.

J. B. H. WARING, M. D.,

*U. S. Army (retired).*

*7 East McMillan Street.*

### Control of Venereal Diseases.

Replying to a circular letter issued by the State Health Commissioner in consequence of resolutions adopted by the Social Hygiene Council, an association affiliated with the Medical Society of Virginia and composed of doctors who are members of the Society, Dr. C. B. Greear, of Honaker, wrote the following letter which he has consented to have published.

The State Health Department has consistently recognized venereal disease as a problem requiring solution; but it has not been able to decide upon a proper method for the solving. Everybody realizes the importance of the subject but its handling is a controversial topic. It has been a consistent policy of the Virginia Department of Health to utilize all valuable agencies for the prevention of disease while leaving to the medical profession matters of cure. It has never been demonstrated to the department that an exception should be made for venereal diseases. Nevertheless, it would seem desirable that an oppor-

tunity be afforded to the medical profession in Virginia to express an opinion on this important subject; and it is with this thought in mind that I request the Editor of the MONTHLY to publish Dr. Greear's communication.—*State Health Commissioner.*

### DR. GREEAR'S LETTER ON VENEREAL DISEASE CONTROL IN VIRGINIA THROUGH TREATMENT AND PUBLICITY MEASURES

The Virginia Social Hygiene Society is certainly to be congratulated upon their efforts to cope with the venereal situation in our State, this hydraheaded monstrosity, gnawing at the vitals of Nation and State. It will be my pleasure to assist in any way I can, in every constructive effort to stamp out this menace to the health and happiness of mankind.

The Lord only knows how many venereals I will be called upon to treat within the next twelve months. As to the medicines, I would much prefer a highly authoritative committee be appointed to work out a program of treatments, to which I would gladly conform.

In this connection the following are some of the questions, among others, which have presented themselves to me:

As a profession, revered and respected as we are, have we done our best to safeguard our people against the ravages of venereal diseases?

Can we consistently recommend taxation and donations for the erection of immense sanatoria and hospitals for the care and treatment of conditions which are complications to venereal diseases which we as a medical profession should have prevented by timely and sane precautions?

While the wrecker, venereal disease, is permitted to run rampant throughout our fair America, are we doing our duty to suppress and prevent the venereal peril, the greatest cause of death, when all complications are taken into consideration—at least one-third more fatalities to its name, than that of the great white plague, tuberculosis?

Can we, as a profession, consistently advocate taxation and donations for hospitals, asylums and sanatoria, while comparatively fruitless efforts are being made use of, to prevent the diseases these institutions are called upon to treat and care for?

Has or has not the public a right to demand that we remove the cause of these leprous con-

ditions, rather than make demands upon them for the payment of fees that are adequate to meeting our requirements for treating them for something they should be protected against?

Providing statistics may mean any thing. It looks as if we, the medical profession, have certainly fumbled the ball in the efforts being used to treat and eradicate venereal diseases in Virginia, and throughout the Nation. Col. Veder, of the U. S. Army, estimates 20 per cent of the population from which our soldiers are recruited have syphilis. It is estimated that the negroes of Virginia have about double the amount of that of the whites. Added to this is the staggering statement by gynecologists, that 75 to 85 per cent of all major surgical operations done on women are due to gonorrhea and complications.

Possibly the time has not yet arrived but, so sure as civilization survives, our progeny must meet this leprous situation we now neglect, round the turn of the road. Will they meet it with gratitude to the medical profession now extant, or will they meet it with contempt for the inefficiency we have used in safeguarding their interests, venereally speaking?

Medical examinations of prostitutes—a barbaric relic of ignorance, licentiousness and graft—quarantine and, last, but not least, prophylaxis, are being made use of to protect humanity against the ravages of venereal diseases. These methods have not proven adequate, evidently, and yet innocent women and oftentimes children are subjected to exposures and infection by these loathsome diseases, the most diabolical plague with which the human family is permitted to suffer and die. We face such a situation as physicians, our hands tied with a form of medieval ethics, requiring us to hold inviolate the confidence vested in us by these venereals.

The question is whether or not the time is or is not approaching, when venereal diseases must be dealt with in a different manner, if the generations that follow us are to be safeguarded against these fearful and devastating diseases. Theoretically, quarantine is the solution but, due to the dismal failure of quarantine, practically it has proven ineffective. Seemingly, we are devoting our time and attention to the care and treatment of diseases, the names of which we are not ashamed of. If hell has been paved with good resolutions,

the venereal situation would cause us to wonder if it hasn't been covered with prudery.

An act of legislation, subject, of course, to constructive criticism, has occurred to me, while pondering over the venereal situation as it now confronts the medical profession. I will pass this suggested legislation on to you for what it is worth:

#### A VENEREAL TREATMENT AND PUBLICITY PROGRAM

Having thoroughly circularized the State, place highly efficient venereal clinics, centrally in each Congressional District. Treat all these patients for twelve months free of any charge. At the expiration of twelve months, require each physician, under oath, to furnish name, address and the disease for which each of his venereal patients is being treated. At the close of each quarter of a year, revise and delete these lists as indicated. Make it the duty of The State Board of Health to secure and also to publish this data in local papers, in full, also to placard it in the post offices and courthouses in the respective counties where the venereals have their permanent or temporary residence. Revising a publicity list each quarter would perpetuate a publicity program of annihilation of venereal diseases.

To be sure, the medical profession would "raise heck" by corporating with such a legislative program, but our venereals have done this about long enough. It is a long way to Tipperary, but there is a way where there is a will, and especially is this true if the way is right.

#### Physical Examination of Federal and Civil Pilots Endorsed.

DEPARTMENT OF COMMERCE,  
AERONAUTICS BRANCH,  
WASHINGTON, D. C.  
DECEMBER 21, 1929.

#### TO THE EDITOR:

The attached resolutions were passed by the American Medical Association at its stated assembly held at Portland, Oregon, in July, 1929. It is believed that these resolutions are of sufficient interest in view of the rapidly increasing number of physicians designated as Medical Examiners to warrant publication in your journal.

You may be interested to know that all applicants for federal pilot licenses, either for



flying or for training as pilots, must pass physical examinations before physicians designated by the Secretary of Commerce. They must likewise be re-examined periodically. These examinations cover a rather detailed examination of the eyes, a brief examination of the ear, nose and throat, equilibrium, a general physical examination, and a detailed examination of the nervous system. There are now about 750 Medical Examiners so designated throughout the country. All these examinations are reviewed in Washington where the applicant is finally certified as qualified or disqualified for the grade for which he has applied.

L. H. BAUER, M. D.,  
*Medical Director.*

#### RESOLUTIONS.

WHEREAS, The Aeronautics Branch, Department of Commerce, has organized a medical service for the physical examinations of civil pilots and prospective pilots, in the interests of safety; and

WHEREAS, The physical standards adopted are in keeping with those adopted universally, and have reduced aircraft accidents from physical causes to a minimum; and

WHEREAS, The department has required these examinations to be made only by designated physicians in the interest of uniformity and control and in accordance with the custom adopted for the Army and Navy and in other countries; and

WHEREAS, The selection of examining physicians by the department has been based on training as flight surgeons or its equivalent, or on group examinations by specialists, a high standard of examination has resulted; and

WHEREAS, The department requires that all examiners hold the degree of Doctor of Medicine, be licensed to practice medicine under the laws of their respective states, and further requires that the appointees be recognized as ethical practitioners in their respective localities, thereby supporting the high standards advocated by this Association; be it

RESOLVED, That the American Medical Association, at its stated assembly in 1929, endorses the medical work of the Department of Commerce, its methods of physical examination and its method of selection of medical examiners, and urges that the same high standards be continued and offers the support of the American Medical Association in furthering the specialty of aviation medicine; and be it further

RESOLVED, That a copy of this resolution be sent to the President of the United States, the Secretary of Commerce, and the Secretary of each State Medical Society.

## Miscellaneous

### The Tuberculous—A Plan for Their Better Care.

As a matter of interest to our members, we give in this Department the following state-

ment, recently received from Dr. Ennion G. Williams, State Health Commissioner:

We shall ask the next General Assembly of Virginia to consider a proposal to aid in the maintenance of locally established sanatoria for the tuberculous. In order to gain a clear idea of the factors leading us to this conclusion, it will be well to consider the policy which has guided us since the State Board of Health was reorganized in 1908.

One of the first major problems to confront the modern board was how to deal best with tuberculosis which, at that time, was not only the major cause of death but was also the chief contributor to disability. We were directed by statute to establish either by purchase or construction, a sanatorium for the care and the cure of the tuberculous.

When the sanatorium was established in 1909, we faced secondary but important problems—(1) What class of patients should be admitted, and (2) what should be the cost to the patient?

Considering the first of these problems, we were forced to the conclusion that more good could be accomplished for the State as a whole if we would take early cases and moderately advanced rather than the far advanced. The records of other sanatoria had shown that early cases could, in a large majority of instances, be arrested or even cured; and that such cases could be returned to their original environments able to support themselves and competent to act as teachers of good health habits. On the other hand like records showed that the far advanced cases only in comparatively few instances were really benefited by sanatorial stay; and, as a further argument against the admission of the far advanced, these stayed indefinitely at the sanatorium once they had been admitted. Obviously our duty was to do positive good rather than negative; and so it was clearly our duty to take people who could really be helped rather than to take those who gave slight promise of being benefited. Equally obviously it was our duty to serve a large number rather than a small.

Having decided this point, we studied the second question—what to charge. Caring for the tuberculous is a public health duty, but it is not entirely a public duty. It is also in individual service. We were led to the conclusion that the best division of expenses would be half and half. Such a sharing of expenses

would make it possible for us to use our appropriation to benefit twice as many people as could be served if the State would have to bear the entire expense. Again, there was a further reason for this conclusion. The care of indigents has always been regarded in Virginia as a local obligation. The State has never conducted poor farms. The General Assembly recognized this custom by enacting a statute which permitted city or town councils or boards of supervisors to pay for patients at the sanatorium—that is, to pay half the costs while the State paid the other half.

While we have endeavored constantly to adhere to the selective plan, it has not been possible to exclude far advanced cases. In fact, these far advanced cases have become so numerous that they have, for several years, constituted a real problem. Year by year, an increasing number of our sanatorium patients are on the infirmaries where they have all their meals served and where they constitute a tax upon the medical staff. They are more expensive to keep, they require so much medical attention that our staffs must be enlarged if the present proportion is increased, they must be kept at the sanatoria so long that early cases sometimes become moderately advanced and moderately advanced sometimes become far advanced before they can be admitted.

We have not been able to turn a deaf ear to those cases. Humanity and intelligent self-interest combine to make it evident that we cannot ignore the far advanced sufferer. He may not be as much a menace to his neighbors as is the earlier open case which is circulating among the people; but he is still a public health problem if he is not trained to look after himself as well as he may and is taught to protect others.

Some years ago, the General Assembly provided us with funds to try the experiment of providing a limited number of free beds—we now have forty of these. As might have been expected, the majority of applications for free beds came from the far advanced class, for advanced tuberculosis makes a patient unable to provide for his own expenses. We have had applications for these free beds far out of proportion to the number available. Therefore, we have been forced to consider some solution for the problem.

At the 1929 meeting of the State Board of

Health, the Health Commissioner offered four possible solutions and discussed each proposal:

1. Ask the General Assembly for more money to care for more free patients.

Our experience having shown that from 75% to 85% of our free cases are far advanced, it would necessarily follow that the more free beds we have, unless present facilities are increased, the less the early cases could be admitted and consequently the less cures effected.

2. Ask the General Assembly for appropriations for new buildings as well as for free beds.

There are several objections to this suggestion. They may be summarized as follows:

- (a) Far advanced cases, requiring more attention, constitute doubled costs. Not only would more beds for them be required but it would be necessary to increase our facilities for housing and feeding additional employees.

- (b) Since tuberculosis is steadily declining, it would not be economical to expend any large sums on capital outlay at our sanatoria until or unless we can feel safe in assuming that the decline shall have stopped. Since we now have no reason for believing that the decline will stop, we cannot conscientiously urge large increases in facilities.

3. Ask the General Assembly for an appropriation to establish a sanatorium or detention hospital for the far advanced cases.

The outstanding objection to such a proposal is that it does not give a definite promise of accomplishing what it seeks to accomplish. The death rate at such a hospital would be so high that people would be afraid to go there. At the regular sanatoria, the death rate is low because there are at all of them fair proportions of early cases in which the mortality is negligible; but even at our present sanatoria the death rate among the far advanced is comparatively high.

4. Ask the General Assembly to provide funds for subsidizing local sanatoria so located that they could serve sufficiently large populations to make them economically practicable and so operated that their standards would conform with the standards set by the State Board of Health.

This plan contemplates the State paying at



such sanatoria just as it does at the State sanatoria, half the costs of maintaining patients. Certainly the State's obligation is the same in both cases. In each case citizens of Virginia are being served and protected.

There are obvious advantages to this plan.

(a) Combining counties or combining cities or combinations of counties and cities would supply the capital outlay necessary for all constructions, thus relieving the State of that burden.

(b) Such institutions would have to be so located that they would be able to serve a sufficiently large accessible population, and thus would make it easier for the relatives and friends of patients to visit them. This would obviate the difficulty so often encountered when trying to get far advanced cases to go away for treatment. They think they are going away to die among strangers.

(c) The subsidizing of such local sanatoria would materially help toward relieving the State sanatoria from the necessity for taking far advanced cases and thus would enable them better to serve their highest purpose, as teaching institutions and as treatment places from which the cured or arrested can return to their homes able to be self-sustaining and helpful to others. The policy of such local sanatoria as have been established has been not to discriminate against far advanced cases but to take the tuberculous at any stage. This policy would have to be continued if State aid were given.

The State Board of Health unanimously approved this plan of local subsidy; and a bill to make this effective will be presented to the next General Assembly. The main features of the bill are:

1. The localities will supply the buildings necessary for the proper housing of tuberculous patients.
2. The buildings will have to be located at a point which, in the judgment of the State Health Department, will afford easy access to a population sufficiently numerous to assure economical administration.
3. The conduct of such sanatoria must be in accordance with the best modern thought regarding the treatment of tuberculosis and must meet the standards set by the State Health Department.
4. The local sanatoria may be wholly free

or partly free and partly paid; but in no case will the State be required to pay more than half the net costs of maintaining patients, interest on capital outlay not being considered in such costs; and in no case shall the State's per patient per diem contribution be greater than the per patient day cost to the State at its own sanatoria for patients who pay or who have paid for them half of their expenses.

It is the sincere conviction of the State Board of Health and the State Department of Health that this plan should be put into operation.

## Woman's Auxiliary, to the Medical Society of Va.

### Work of the Woman's Auxiliary of the Richmond Academy of Medicine.

The following letter is printed to show just how the Auxiliary to the Richmond Academy of Medicine happened to undertake the work it adopted in March of the past year.

Richmond, Va.,  
March 7, 1929.

Mrs. Stuart Michaux,  
President Women's Auxiliary,  
Richmond Academy of Medicine,  
Westhampton, Virginia.

My Dear Mrs. Michaux:

I can't think of a group likely to be more interested and more able than yours to undertake a project for the college which it seems to me has a good deal of appeal in it. The Dooley Hospital, which is used primarily for pediatric cases since the Crippled Children's Hospital has opened, has an able specially trained head supervisor and a thoroughly qualified clinician, who gives the major part of his day to the work of the children there and in the outpatient department and who is paid for the present by the Commonwealth Fund of New York City. Recently, the physical equipment at the Dooley Hospital has also been improved, but we do not have a group, such as the auxiliary of the Richmond Academy of Medicine, engaged in a definite program of work for the hospital.

There are a number of organizations, most of them connected with churches in Richmond, which have at times rendered important assistance to the Dooley Hospital and they can be challenged to this same service again if leadership can be secured. It has therefore occurred to me that the auxiliary might be willing to undertake, through its own committees and through the solicitation of aid from other organizations, names of some of which we can supply, furnishing for the present at least such supplies as are named on the inclosed memorandum. These are greatly needed by the children of Dooley Hospital.

As you know, practically all of the cases at the

Dooley are able to pay but a modest sum, much less than the cost of actual maintenance. On that account we must appeal for assistance to those who believe that such children deserve the best attention and consideration which this community can supply.

Mrs. Michaux, I hope very much that this appeal will merit favor with you and your associates. If desired, I shall be glad to confer with you or with the auxiliary itself. We are exceedingly anxious to have you undertake this project if it is at all possible.

Sincerely yours,

W. T. SANGER,  
*President.*

The appeal of this letter combined with the appeal of the proposed project itself needed nothing else to inspire this auxiliary to take up the task suggested. Anxious to do some really constructive piece of social work the ladies felt there could be no more fitting niche for them to fill than this, an opportunity entirely untouched by any other organization in the city at the present time.

Their first concern was to raise funds and they accordingly set about this by planning a card party which netted slightly over one hundred dollars. With this amount, because they were able to buy at wholesale, they purchased enough materials in bolts to make more than five hundred garments and articles necessary to the comfort of sick and convalescent children. These included rompers, dresses, boys' suits, gowns, diapers, crib spreads and blankets, stockings, slippers, etc.

Through their committees they enlisted the interest and help of circles of various local churches and other organizations. Supervised by their committees these organizations took over the making of the garments as a part of their social work. Some of them have also made donations of both money and supplies through solicitation of members of the Auxiliary, the plan being that the Richmond Auxiliary act as a sort of clearing house for all other groups who are interested and wish to contribute in either time or money to the cause.

The Auxiliary is much gratified at the results of their efforts in this short time and expects added interest and a much larger volume of work for the coming year.

### **The Executive Committee of the Woman's Auxiliary to the Norfolk County Medical Society**

Held a very enthusiastic meeting on Monday evening, December 9th., at 8 o'clock, in

room 705 Medical Arts Building, with 35 members present. The meeting was opened with prayer by the president, Mrs. W. P. McDowell, after which the minutes of the previous meeting were read by the Secretary, Mrs. Rufus Kight. The minutes being approved, the Corresponding Secretary, Mrs. L. B. Scott, called the roll. The Treasurer, Mrs. J. L. Rawls, was unavoidably absent, but sent her report, which was read by the Assistant Treasurer, Mrs. Geo. A. Renn.

Mrs. R. L. McMurran, Chairman of the Portsmouth division of the Auxiliary, made a splendid report of the work being done by her Committees. Mrs. C. L. Harrell, the very active and enthusiastic Chairman of the *Hygeia* Committee, made a splendid report. Mrs. Lewis Berlin was absent on account of illness, but her report on work in the Hospitals was read by Mrs. M. N. King. Reports were then given by Mrs. Southgate Leigh on Clubs; Mrs. Wm. A. Porter, Publicity; Mrs. F. C. Rinker, Sick; Mrs. N. F. Rodman, Courtesy; Mrs. A. A. Matthews, Motor Transportation; Mrs. C. H. Lupton, Telephones; Mrs. Claiborne Willcox, Entertainment; Mrs. C. C. Smith, Health; Mrs. R. H. Peake, Birthday Cards; Mrs. Rufus Kight, Parent-Teacher; and Mrs. A. E. Wilson on Pure Milk and Water.

Mrs. Willcox, a member of the Health and Recreation Committee of the Y. W. C. A., extended a very special invitation to Mrs. R. U. Burges, Mrs. Elmore Jones and Mrs. Geo. A. Renn, as representatives of the Auxiliary, to attend a meeting to be held at the Y. W. C. A. on December 13th. It was decided that during the month of January the members of the Auxiliary would have a luncheon at the Colonial Inn on Freemason Street. There being no further business the meeting adjourned.

EMILY T. ALLEN,  
*Associate Publicity Chairman.*

Some New Year wishes for you, friends,  
Hoping that not one of them ends  
Till comes the long, long distant day  
When you will leave this world for aye.

My first wish that you'll have good health,  
My last one that you'll have much wealth,  
And sandwiched in between the two  
A lot of hopes which will come true.  
Plenty of work which you will like,  
But not enough to make you "strike";  
Friends many, loyal, true and kind,  
A happy heart—contented mind.

—Selected.



# President's Message

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To disparage the Medical Profession seems to be a growing custom on the part of certain politicians, and especially certain lawyers, who are trying to get political positions in order to make a decent living. They say: "The ordinary doctor does not keep up to date, he does not know enough to really practice modern medicine, and that in consequence he should not be given public positions such as County Health Officer, or even School Physician."

While most of this talk is propaganda, with the idea of appearing wise and thereby getting votes for themselves or possibly jobs for their friends, at the same time the Medical Profession must be in position to controvert such accusations. Our medical men must be able to show the people that they are trying to keep up, and that they are just as able to take care of these Medico-Political positions as someone brought from the outside. But to do this it is necessary to really keep up with what is taking place in the Medical Profession, and for this purpose we must take Post-Graduate Courses, through which it is comparatively easy to keep abreast with the times.

The Medical Society of Virginia, in conjunction with the University of Virginia and the Medical College of Virginia, is trying to offer such opportunities to its members. On another page you will see the plan which our new Department of Clinical Education is going to put into effect. At a recent meeting held in Richmond it was decided to divide the work into two classes, the first type would take the doctors from their homes. This has already been successfully tried out by our Medical Schools and on the first day of the meeting of the Medical Society of Virginia. The second type would carry the clinics to the home or neighborhood of the doctors. These local clinics would last only one day and would be conducted by men appointed by the Department of Clinical Education of the Medical Society of Virginia, the local profession being expected to furnish clinical cases for demon-

stration. In order to put this type into effect, it will be necessary for the county medical society to write to Dr. J. Allison Hodges, Chairman of this Department, and ask to be furnished men for the clinic, specifying place and approximate time, and also the facilities which the local society can offer.

It is hoped that we may be able to hold several such local clinics during the coming year and see if the plan is feasible, and how much it is going to cost. Where the local doctors have held such clinics, we hope that they will be encouraged to go off to a clinic held by the University of Virginia or the Medical College of Virginia so as to get more instruction on lines in which they are interested.

This year we want to test the plan presented by our Department of Clinical Education. To make it a success, we must not only have a centrally organized Department with men able and willing to go off and hold the clinics, but we must have local county societies ready and willing to attend the clinics and furnish the necessary material. Unless the local doctors are really in earnest, the clinics will of necessity fail. So the first step in this direction is better county organization and cooperation, which is the basic foundation upon which this project must rest.

If the Medical Society of Virginia can establish such a program, with the help of the county societies, it will not only add to the medical education of our members, but will improve their standing in the local communities by demonstrating that the men are in earnest and are really keeping up with the progress of the times.

I feel sure that the whole membership of our Society is ready to test out this well considered plan which should greatly benefit us individually as well as bolster up the reputation of the Profession in Virginia.

CHARLES R. GRANDY, M. D.,  
*President, Medical Society of Virginia.*

# Department of Clinical Education

## OF THE MEDICAL SOCIETY OF VIRGINIA

### Extension Work in Graduate Education.

The scheme for continuance of Graduate Medical Education by local Extension Courses to its members, undertaken at the last annual meeting of the State Society, was initiated on December 4th at the Society's offices in Richmond, at a meeting of interested Committee members and others, as noted below.

This movement appears to have met with universal approval, for its urgent need is recognized by all. It only requires now that the individual members of the Society shall give the movement their personal support to make it effective.

Its application throughout the State will be necessarily slow, but cooperative service always gets results. It is easy to get educated, but difficult for doctors to stay educated—hence this plan.

The methods to be employed have been presented officially to the members of the Executive Faculty of the Medical College of Virginia, the Department of Medicine of the University of Virginia, the Seaboard Medical Association, the Southside Virginia Medical Association, the staff of the Petersburg Hospital, and by request to the Negro physicians of the Lower Peninsula, and all of these have given their enthusiastic endorsement to the proposed plan.

In brief, this plan for the Continuous Medical Education of general practitioners consists of two main methods of Clinical Education by Extension Courses, one through the Medical Colleges of the State, and the other through the component, district and group Societies, functioning through their regional hospitals in the different Councilor Districts, and every effort will be made to supplement and strengthen existing organizations doing similar work in the State. It is expected that all of these will function eventually through the Department of Clinical Education of the Society.

The general plan for the Department of Clinical Education of the Medical Society of Virginia is as follows:

#### 1. Major features:

- a. Carrying, through the Department of Clinical Education, the progress and recent advances in Medicine and Surgery

by means of Diagnostic Clinics, Clinical Reviews, etc., in certain hospitals, mutually selected, to the doctor in his own community;

- b. Post-Graduate Educational and Clinical Courses by the Medical Colleges of the State; and

#### 2. Collaborative features:

- a. Hospital and Laboratory exhibits and privileges extended by the District and City hospitals on certain days to doctors in their immediate vicinities, and regularly scheduled each week, and published monthly in the Society Journal;
- b. Journal Clubs and Correspondence Courses, published at intervals in the Society Journal, on subjects requested by members;
- c. Later on, radio addresses on Medical and Surgical progress to doctors, and the public occasionally, by doctors at different radio broadcasting stations throughout the State;
- d. An interchange of Clinicians from one district, or city, or college to another, as occasion offers;
- e. Ultimately, these advantages and privileges to be given to the Negro physicians of the State, if desired, as far as practicable; and
- f. Other methods of practical Clinical Education will be used, as opportunity affords, to meet existing needs in special localities.

The central idea of this whole scheme of Clinical Education is the establishment of the Department of Clinical Education of the State Society with an active Executive Secretary. It will act as a supply and exchange station for information and correlation of this work; the component Medical Societies of the State being the vitalizing factors, the ten Councilors of the Society, representing the ten Congressional districts of the State, being the Advisors, and the State Medical Society acting as sponsor and the connecting link between these units through the Department of Clinical Education, composed of seven members, and aided by the Advisory Board, composed of members of the Society's Standing Committees on Med-



ical Education and Hospitals, and Scientific Work and Clinics.

Suggestions by members of the Society for the further perfection of this general plan will be appreciated by the new Department, and definite plans for the initiation of this work will be formulated by the Department of Clinical Education of the Society at a meeting to be held subsequent to the mid-winter meeting of the Councilors in Richmond.

Since the organization meeting of the Department of Clinical Education, when Dr. J. C. Flippin was elected as the representative of the Department of Medicine of the University of Virginia, he has decided, although personally much interested, that it would be better for the Chairman of their local Committee on Clinics for practitioners, Dr. Lawrence T. Royster, to represent the Faculty as the University's representative, and he has been formally nominated by faculty vote. Accordingly, Dr. Royster will be elected at the next meeting to represent the University on this Department.

The Department desires publicly to thank Mr. George B. Zehmer and his associate, Mr. George W. Eutsler, of the Extension Department of the University of Virginia, for the presentation of their concluding report on "Post-Graduate Medical Education in Virginia," comprising one hundred pages of timely and most valuable information, which will be of the greatest assistance to this Department in its future work. It wishes also to express its appreciation of their pronounced interest in this work, and its thanks for the promised services of Mr. Eutsler as Acting Executive Secretary. With this excellent additional cooperation of specialists, it is believed that the work now undertaken, can be progressively and scientifically developed.

All members of the State Society are requested to write for any information desired on any subject relative to these Extension Courses in Graduate Medical Education, either to the Acting Executive Secretary, Mr. George W. Eutsler, P. O. Box 707, University, Virginia, or to the Chairman of the Department of Clinical Education, 5 East Franklin Street, Richmond, Virginia.

### **Organization Meeting of the Department of Clinical Education of the Medical Society of Virginia.**

In response to call from Dr. J. Allison Hodges, Richmond, President-elect of the Medical Society of Virginia, about twenty doctors met at the Society's offices, Richmond, on Wednesday evening, December the 4th. Those in attendance represented the officers and councilors of the Society, members of interested committees, the two medical colleges of Virginia, the State Department of Health, hospital officials, etc. Upon request of Dr. Hodges, the president, Dr. Charles R. Grandy, of Norfolk, presided.

In addition to the President and President-elect, those present were: Drs. J. W. Preston and P. St. L. Moncure, of the Committee on Medical Education and Hospitals, Drs. John S. Horsley, Jr., and J. Edwin Wood, of the Committee on Scientific Work and Clinics, Drs. J. C. Flippin and Manfred Call from the two medical schools, Dr. E. G. Williams, State Health Commissioner, Drs. R. D. Bates, Alex. G. Brown, Jr., Stuart McGuire, A. L. Gray, W. Brownley Foster, N. T. Ennett, William F. Drewry, Chas. L. Phillips, Mr. George B. Zehmer and Mr. Geo. W. Eutsler of the Extension Department of the University of Virginia, and Miss Agnes Edwards, Executive Secretary of the Society.

Dr. Hodges, upon request of the President, explained the purpose of the meeting, which briefly was to decide on the best and most feasible plan for bringing to our members some plan for continuous clinical educational facilities, in addition to those offered by the two medical schools in their post-graduate courses each year. The idea is likewise to carry instruction to members of our Society where they cannot arrange to attend existing courses elsewhere, and every effort will be made to supplement and strengthen existing organizations doing similar work. This work is undertaken as the result of the report of the Committee on Medical Education and Hospitals (page 545, November, 1929, issue, VIRGINIA MEDICAL MONTHLY) at our recent meeting in Charlottesville, which report our House of Delegates unanimously moved should be adopted. Dr. Hodges read several letters from various sections of the State which showed

that many members are already interested in this project.

The following topics were discussed:

1. Upon request of Dr. Hodges, the first matter to receive attention was giving a definite name to the Bureau. After an interesting discussion, the name adopted is "The Department of Clinical Education of the Medical Society of Virginia."

2. Dr. Stuart McGuire was asked to express his opinion as to the best method of securing the cooperation of regional hospitals for clinical meetings, and for securing the names of those hospitals (private or public) willing to cooperate. He stated that there was no doubt in his mind but that hospitals generally would be perfectly willing to cooperate and glad to put on special courses, but he felt there would be plenty of time to arrange this part after other details had been worked out.

3. Next followed a discussion of the length of time and dates for the clinics. The representatives from the colleges were asked to arrange their post-graduate courses so that there would be no conflict, as some doctors might wish to attend both courses. One suggestion was that programs of the county and district societies might be arranged so as to have invited guests speak at an opening session one evening and then clinics and operations might be held the next morning, with lunch to follow. A moderate charge might be made for the lunch or for laboratory fees, it being thought that interest is increased where some charge is made. Some one suggested that there be day and night sessions only, where clinics are desired. Mr. Zehmer being asked what plans were adopted in other states, in accordance with report presented by his department, said that in Michigan, where the plan had worked out especially well, they had started with one day clinics and had increased the sessions to two and three days in some of the counties, districts and larger cities. Dr. Preston told of the clinics which had been held by the Clinch Valley Medical Society and which he attended when president of the State Society. He said that they held their clinics mostly in the afternoons, and followed with a supper. They had been so enthusiastically received, that the Society had put them on again. Each man conducting a clinic was given one hour. A letter from Dr. C. B. Bowyer, fully

describing these clinics, was read. In view of the interest which has already been shown in the Fourth and Ninth Congressional Districts, Dr. Grandy thought that, as a trial, clinics might first be put on in these two districts, in addition to those by the colleges, and perhaps in Norfolk as one of the larger cities, these being arranged so that there would be no conflict as to time. Dr. Hodges thought the Department might communicate with the component societies and be guided in some measure by the action taken by them. He felt that the initial time allowed for these meetings might be a night and day, day and night, or only a day meeting, but it was decided to defer action on this matter until a little later and leave the dates to those locally interested.

4. As to the best way of cooperating with the colleges, Dr. Call said that the Medical College of Virginia would be glad to cooperate with the Department in any way possible.

Dr. Flippin stated that they had had three years' experience with these courses. They started in an experimental way and quizzed the doctors as to the time they would wish given to the courses. Some could stay a week but the majority favored a two-day and one-night session. Dr. Flippin said that in the courses given at the University of Virginia, the aim had been to keep away from reading papers and from operations. They demonstrated cases, answering such questions as were asked. Dr. Wood said that he felt the two day clinics worked well as they permitted doctors in the various sections to so arrange their work that one might attend one day and another the next. He said the majority of those attending their courses had been in a radius of fifty to sixty miles from the University.

Dr. Grandy said it was possible we would come to two types of courses—one through the county societies and the other through the colleges and larger hospitals of the State.

5. The best way of getting clinicians was next discussed. Some one suggested that volunteers might be asked for but it was stated that this would be a dangerous precedent to establish and that the clinicians should be carefully selected by the Department. The need is for men who can stand up and talk and who will not have to read papers. Dr. Brown, asked for an opinion on this subject, said he



thought the most feasible plan would be for some one to develop the clinics and arrange the dates to suit the localities. Then, after the local men had secured the cases, a suitable man should be selected for demonstrating them. Dr. Williams said that Dr. Hodges, as this year's chairman of the Department, would be the man to do this. He said that the State Department of Health would be glad to arrange for a T. B. clinic. Dr. H. G. Carter, when superintendent of Piedmont Sanatorium, had several of these for the colored doctors. The Board of Health would do this also for the white doctors of the State and would take care of about twelve over night. They would like to have Dr. Charles Phillips take care of the pathological work in connection with such a clinic and perhaps he might arrange an autopsy. Also, if material is gathered, Dr. William F. Drewry is especially qualified to have a psychiatric clinic.

6. It was decided that it would not be necessary to have a discussion of methods of operation as that would be the work of the Department.

7. The question of the use of the radio in this work was also referred to the Department.

8. It was decided not to ask Legislature for assistance at this time, as it would be better to wait until we have accomplished something. Dr. Flippin felt that it would be inadvisable even then, except through some organized department. Dr. Ennett stated that North Carolina received help in this work through the appropriation made to the State Board of Health.

The question was raised as to whether or not the Department should offer courses for the negro doctors of the State. The general opinion seemed to be that we should take care of our own members first and come to this later. Dr. Phillips said that if a program could be arranged for the negroes, he believed funds would be available from outside. Dr. Foster said that the negro death rate in Richmond was higher than for the whites so he felt that the training of the negro race was of vital importance and hoped the Department would bear this matter in mind. Although it was thought better to concentrate upon our own members this year and to see how the plan works out, it was decided that, as the negroes are so intensely interested in this plan, it might be possible to give the clinics for the whites and negroes at the same time, when the ma-

chinery gets to operating, if the funds are available for both.

Dr. Grandy requested the Department not to forget to use the MONTHLY for as much of the publicity work as possible, as this would help to arouse interest throughout the State.

The meeting adjourned, that the Steering Committee might select the membership of the Department of Clinical Education.

### **Department of Clinical Education, Medical Society of Virginia.**

The members of the Committee on Medical Education and Hospitals and the Committee on Scientific Work and Clinics of the Medical Society of Virginia, with Dr. J. Allison Hodges, Richmond, President-elect, as chairman, then met in the Society's offices, December the 4th.

Mr. George B. Zehmer, of the Extension Department of the University of Virginia, gave a very brief resume of his final Report on Post-Graduate Medical Education in Virginia, which he stated covered about 100 pages and said that credit for the special work on this report was due Mr. George W. Eutsler, of the Extension Department, who was also attending this meeting. On behalf of the Society, Dr. Hodges thanked Mr. Zehmer and Mr. Eutsler for their excellent report.

In accordance with report adopted by the House of Delegates of the Medical Society of Virginia, the membership of the Department of Clinical Education of the Medical Society of Virginia was next selected:

*From the Medical Society of Virginia:*

Dr. J. Allison Hodges, Richmond, President-elect, chairman;

Dr. Walter B. Martin, Norfolk;

Dr. C. B. Bowyer, Stonega.

*From the Medical Colleges of the State:*

Dr. Manfred Call, Richmond, Medical College of Virginia;

Dr. J. C. Flippin, University, University of Virginia, Department of Medicine.

*From the State Department of Health:*

Dr. Ennion G. Williams, Richmond, State Health Commissioner.

*Acting executive secretary:*

Mr. George W. Eutsler, University, Extension Department of the University of Virginia.

It was decided that the term of office for these members should continue through the next annual meeting of the Medical Society of Virginia.

According to the adopted report, it was announced that members of the Committees on Medical Education and Hospitals, and of Scientific Work and Clinics now become the Advisory Board to this Department.

The chairman and acting executive secretary were requested to look over the situation and submit suggestions to the Department for consideration at its next meeting.

There being no further business, the meeting then adjourned.

Respectfully submitted,

AGNES V. EDWARDS,

*Secretary pro tem.*

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## Proceedings of Societies

### **The Rockbridge County Medical Society**

Held its regular monthly meeting, Saturday, November 23rd, at the Jackson Memorial Hospital in Lexington, Va., Dr. E. P. Tompkins, president, presiding. Dr. Ennion G. Williams, state health commissioner, addressed the society on the necessity of a close spirit of co-operation between doctors and health units. Colonel C. R. Keiley, associate director of rural health work, and Dr. R. P. Cooke, local health officer also gave short talks with regard to this work.

The following officers were elected for the coming year: president, Dr. Robert Cooke, Lexington; vice-presidents, Dr. F. L. Thurman, Buena Vista; and Dr. C. H. Davidson, Lexington; and secretary-treasurer, Dr. H. L. Mitchell, Lexington (re-elected).

### **The Richmond Academy of Medicine,**

At its meeting on December the 10th, elected Dr. William H. Higgins as president, to succeed Dr. W. B. Blanton whose term of office expired with 1929. The new vice-presidents are Drs. Karl S. Blackwell and Warren T. Vaughan, while Dr. Mark W. Peyser was re-elected secretary-treasurer for the thirty-seventh consecutive year. All officers are of Richmond. The board of trustees, which is not elective but is composed of the president and the four immediately preceding ex-presidents, includes Dr. C. C. Coleman, chairman, and Drs. Stuart Michaux, James H. Smith, Wyndham B. Blanton, and William H. Higgins.

### **The Rockingham County Medical Society**

Held its regular meeting in Harrisonburg, Va., December the 2nd, at which time Dr. N. M. Canter was re-elected president and Dr. J. C. Harshbarger, secretary. Both officers are of Harrisonburg. At this meeting, Dr. B. C. Keister read a paper on "Some Things for the General Practitioner to Keep in Mind." This Society meets on the first Monday evening of each month and on these occasions, refreshments are served by the nurses of the Harrisonburg Hospital.

### **The Warwick County Medical Society,**

At its meeting in Newport News, Va., on December the 9th, elected Dr. Samuel Downing, of Newport News, president for the year 1930, and Dr. Guy C. Amory, of Hilton Village, secretary-treasurer.

### **The Southside Virginia Medical Association**

Held its last quarterly meeting for 1929 in Petersburg, on December the 10th, under the presidency of Dr. R. H. Manson, of McKenney. Following the reading of a number of interesting papers, officers were elected for the ensuing year. They are: President, Dr. J. A. Grizzard, Drewryville; vice-presidents, Dr. Ruth Mason, Petersburg; Dr. J. L. Rawls, Suffolk; Dr. W. W. Wilkinson, La Crosse; and Dr. Meade Edmunds, Petersburg; secretary-treasurer, Dr. R. L. Raiford (re-elected), Franklin. Following the afternoon session a delightful dinner was tendered the visiting doctors by the local profession.

The next meeting will be held in Hopewell on the second Tuesday in March.

### **The University of Virginia Medical Society.**

At the meeting of the Society on November 25th moving pictures were presented showing "Movements of the Alimentary Tract in Experimental Animals" and "The Influence of Drugs on Gastro-Intestinal Motility."

On December 2nd there was a joint meeting of the Albemarle County Medical Society and the University of Virginia Medical Society. At this time moving pictures based on Kana-vel's work on, "Infections of the Hand," were shown.

Following this, election of officers for the ensuing year was held. Dr. Edwin P. Lehman, Professor of Surgery, was elected president of the Society, and Dr. Joseph Graham, of the Department of Pathology, was elected secretary.



# The Truth About Medicine

In addition to the articles enumerated in our letter of October 25, the following have been accepted:

Curdoiac Food Co.

Curdolac Soya Flour.

Curdolac Casein-Bran Improved Flour.

Curdolac Soya-Bran Flour.

Curdolac Breakfast Cereal.

Curdolac Casein Compound.

Curdolac Wheat-Soya Flour.

Curdolac Soya-Cereal Johnny Cake Flour.

Curdolac Soya-Bran Breakfast Food.

Cutter Laboratory.

Ampoule Solution Silver Nitrate, 1 per cent.

Typhoid Paratyphoid Prophylactic hospital size package.

Polyanaerobic Antitoxin.

De Pree Chemical Co.

Sulpharsphenamine—De Pree, 0.5 Gm. Ampules.

Sulpharsphenamine—De Pree, 0.9 Gm. Ampules.

H. K. Mulford Co.

Gelatine Compound Phenolized—Mulford.

Diphtheria Toxoid—Mulford, 30 c.c. vial.

Erysipelas Streptococcus Antitoxin, Concentrated, 10 c.c. syringe.

Typho-Bacterin Mixed (Triple Vaccine TAB), thirty 1 c.c. vial package.

Typho-Serobacterin—Mulford (Sensitized Typhoid Vaccine), 3 syringe package.

Normal Horse Serum without Preservative.

Alder Pollen Extract—Mulford; Alfalfa Pollen Extract—Mulford; Annual Sage Pollen Extract—Mulford; Apple Pollen Extract—Mulford; Aster Pollen Extract—Mulford; Blue Beech Pollen Extract—Mulford; Boneset Pollen Extract—Mulford; Brown Grass Pollen Extract—Mulford; Burning Bush Pollen Extract—Mulford; Burweed Marsh Elder Pollen Extract—Mulford; Buttercup Pollen Extract—Mulford; California Mugwort Pollen Extract—Mulford; Careless Weed Pollen Extract—Mulford; Cedar Tree Pollen Extract—Mulford; Clover Pollen Extract—Mulford; Crab Grass Pollen Extract—Mulford; Dahlia Pollen Extract—Mulford; Dragon Sage Pollen Extract—Mulford; Elm Tree Pollen Extract—Mulford; English Plantain Pollen Extract—Mulford; Fescue Pollen Extract—Mulford; Golden Glow Pollen Extract—Mulford; Hickory Tree Pollen Extract—Mulford; Milo Maize Pollen Extract—Mulford; Mock Orange Pollen Extract—Mulford; Oat Pollen Extract—Mulford; Olive Pollen Extract—Mulford; Pecan Tree Pollen Extract—Mulford; Pine Tree Pollen Extract—Mulford; Poverty Weed Pollen Extract—Mulford; Prairie Grass Pollen Extract—Mulford; Privet Pollen Extract—Mulford; Quack Grass Pollen Extract—Mulford; Rabbit Brush Pollen Extract—Mulford; Rose Pollen Extract—Mulford; Salt Bush Pollen Extract—Mulford; Shad Scale Pollen Extract—Mulford; Sheep Sorrel Pollen Extract—Mulford; Slender Ragweed Pollen Extract—Mulford; Spring Amaranth Pollen Extract—Mulford; Sudan Grass Pollen Extract—Mulford; Velvet Grass Pollen Extract—Mulford; Western Giant Ragweed Pollen Extract—Mulford; Wheat Pollen Extract—Mulford; Wild Oats Pollen Extract—Mulford; Willow Tree Pollen Extract—Mulford; Winter Grass Pollen Extract—Mulford; Yellow Foxtail Grass Pollen Extract—Mulford.

National Drug Co.

Diphtheria Toxoid.

Thompson's Malted Milk Co., Inc.

Thompson's Maltose and Dextrin.

## NEW AND NON-OFFICIAL REMEDIES.

Digitos Ampules, 5 c.c.—Each ampule contains digitos (New and Non-official Remedies, 1929, p. 138), 5 c.c. H. K. Mulford Co., Philadelphia.

Luminal Capsules, 1½ grains. Each capsule contains luminal (New and Non-official Remedies, 1929, p. 81), 1½ grains. Winthrop Chemical Co., Inc., New York.

Metaphen 2,500—It contains 1 part metaphen (New and Non-official Remedies, 1929, p. 272), dissolved in 2,500 parts of water containing 0.33 per cent each of sodium bicarbonate and sodium carbonate. Abbott Laboratories, North Chicago.

Diphtheria Toxoid—Squibb.—This diphtheria toxoid (New and Non-official Remedies, 1929, p. 368), is also marketed in packages of one 30 c.c. vial. E. R. Squibb & Sons, New York. (Jour. A. M. A., November 9, 1929, p. 1471).

Diphtheria Toxoid—Cutter.—Diphtheria toxoid (New and Non-official Remedies, 1929, p. 368), prepared from diphtheria toxin whose L+ dose is 0.2 c.c. or less by treatment with 0.3 to 0.4 per cent formaldehyde. It is tested for antigenic potency by injection into guinea pigs. It is marketed in packages of one immunization treatment of three 1 c.c. vials; in packages of ten immunization treatments of thirty 1 c.c. vials; also in packages of one 30 c.c. ampule. Cutter Laboratory, Berkeley, Calif. (Jour. A. M. A., November 16, 1929, p. 1559).

Solution of Invert Sugar—Lilly.—A solution of a mixture of dextrose and levulose, obtained by the inversion of sucrose. Solution of invert sugar—Lilly is used in the injection treatment of varicose veins. It is claimed that the use of sugar solutions such as solutions of dextrose or of invert sugar have the advantage over solutions of sodium chloride, sodium salicylate or mercuric chloride, in that they do not cause severe cramps or sloughing if accidentally injected outside the veins. Solution of invert sugar—Lilly is marketed in ampules containing 5 Gm., 6 Gm., and 75 Gm., respectively, in 10 c.c. Eli Lilly & Co., Indianapolis.

Sulpharsphenamine—De Pree, 0.5 Gm. Ampules.—Each ampule contains sulpharsphenamine—De Pree (New and Non-official Remedies, 1929, p. 71), 0.5 Gm. De Pree Chemical Co., Holland, Mich.

Sulpharsphenamine—De Pree, 0.9 Gm. Ampules.—Each ampule contains sulpharsphenamine—De Pree (New and Non-official Remedies, 1929, p. 71), 0.9 Gm. De Pree Chemical Co., Holland, Mich. (Jour. A. M. A., November 23, 1929, p. 1649).

## PROPAGANDA FOR REFORM

Viosterol: Irradiated Ergosterol.—The demonstration that many food materials can acquire unique physiologic potencies when the products are subjected to the direct influence of ultraviolet rays is a contribution of recent scientific investigation. The effects of the irradiated substances within the body are identical with, or equivalent to, those that have been ascribed to vitamin D, the antirachitic food factor. The latter is known to induce the healing of rickets or to prevent the latter when suitable foods containing vitamin D, such as cod liver oil, are employed in a prophylactic way. Tetany and probably other diseases may be favorably influenced in a comparable manner. Ergosterol, a sterol widely present in small amounts in edible products, was shown to the "provitamin" or substance that acquired antirachitic potency after suitable irradiation. It was inevitable that a product possessing the remarkable action of irradiated ergosterol and readily obtainable should attract attention in the fields of

therapy and prophylaxis; also, the danger of quackery follows in the wake of discovery, particularly when, as in the case of irradiated ergosterol, the product possesses enormous potency. To avert the almost inevitable confusion and to exercise a wholesome restraint over the exploitation of the new product, the Council on Pharmacy and Chemistry of the American Medical Association has followed its usual custom of adopting a common name, viosterol, for irradiated ergosterol. It has recognized two preparations of this substance, namely, viosterol in oil 100 D. (N. N. R.), having one hundred times the antirachitic potency of a standard cod liver oil, and cod liver oil with viosterol 5 D. (N. N. R.), being cod liver oil with the addition of viosterol and having five times the antirachitic potency of a standard cod liver oil. In announcing this action, the Council publishes standards of identity, dosage, and suggestions for therapeutic use. The use of products accepted for New and Non-official Remedies, according to the advices of the Council, is likely to avert any undesirable consequences from the use of this potent agent. (Jour. A. M. A., August, 31, 1929, p. 694).

**Accidents with Local Anesthetics.**—The investigation of accidents following the use of local anesthetics instituted by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association has had many practical results. The reports were published in 1920 and 1924; now, Andre Klotz, of the Strasbourg Hospital, has published the results of an extensive study of the literature on this subject. He agrees with the American committees that accidents are due mainly to overdosage, to injections of cocaine, to the use of solutions of too high concentration, to excessive doses of epinephrine, and a smaller number to peculiar conditions of the patient that are beyond evaluation by the physician. The investigations of the American committees and of Klotz have thrown much light on the causes of avoidable accidents with local anesthetics, but it is obvious that many surgeons continue to disregard the warnings that have been published. The report of Klotz emphasizes the importance that physicians should continue to cooperate with the Permanent Committee for the Study of Toxic Effects of Local Anesthetics of the Therapeutic Research Committee. (Jour. A. M. A., May 18, 1929, p. 1680.)

**Prescription of Remedies in Accordance with Ethics.**—The Principles of Medical Ethics of the American Medical Association contains the following with regard to the prescribing of medicine: ". . . it is . . . unethical to prescribe or dispense secret medicines or other secret remedial agents, or manufacture or promote their use in any way." It contains no provision holding it unethical to prescribe proprietary medicinal preparations of declared known composition. If physicians will limit their prescribing to the medicinal products included in the United States Pharmacopeia, the National Formulary, and New and Nonofficial Remedies, they may be confident that they are not prescribing secret remedies; they should be mindful, however, that the National Formulary contains many drugs and drug mixtures that are practically worthless, and that preparations in New and Nonofficial Remedies are new, and, though worthy of trial, are in some instances still more or less in the experimental stage. For a guide to prescribing, the Epitome of the U. S. Pharmacopeia and National Formulary, and New and Nonofficial Remedies are to be recommended. (Jour. A. M. A., May 18, 1929, p. 1697.)

## Book Announcements

**Research and Medical Progress and Other Addresses.** By J. SHELTON HORSLEY, M. D., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. St. Louis. The C. V. Mosby Company. 1929. Octavo of 207 pages. Cloth. Price, \$2.00.

This book is a collection of addresses and papers by Dr. J. Shelton Horsley. Most of them have been presidential addresses or chairman's addresses, or orations before state medical societies, and have been delivered before mixed audiences of the medical profession and the laity. One of the addresses is the presidential address before the Virginia Academy of Science.

The addresses have to do largely with factors that make for medical progress and improvement in medicine, and do not deal with technical details of surgical procedures. Much stress is laid upon biologic principles in medical practice.

This book is dedicated to the Ex-Interns of St. Elizabeth's Hospital, Richmond, Va.

**Hemorrhoids. The Injection Treatment and Pruritus Ani.** By LAWRENCE GOLDBACHER, M. D., Philadelphia. F. A. Davis Company. 1930. Octavo of 205 pages. Illustrated with 31 half-tone and line engravings, some in colors. Cloth. Price, \$3.50 net.

**Clinical Obstetrics.** By PAUL T. HARPER, Ph. B., M. D., Sc. D., F. A. C. S. Fellow of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, and of the New York Obstetrical Society. Clinical Professor of Obstetrics, Albany Medical College. Regional Consultant in Obstetrics, New York State Department of Health. Philadelphia. F. A. Davis Company. 1930. Octavo of 629-xix pages. Illustrated with 84 plates of engravings (250 figures) with legends and charts. Cloth. Price \$8.00 net.

**The Medical Museum. Modern Developments, Organization and Technical Methods Based on a New System of Visual Teaching.** By S. H. DAUKES, O. B. E., M. D., D. P. H., D. T. M. & H. Director of The Wellcome Museum of Medical Science affiliated to The Bureau of Scientific Research. An amplification of a thesis read for the degree of M. D. Cambridge. The Wellcome Foundation, Ltd. Endsleigh Court, 33, Gordon Street, London, W. C. 1, England. Octavo of 183 pages. Illustrated. Cloth.

**Handbook of Bacteriology for Nurses.** By HARRY W. CAREY, A. B., M. D. Assistant Bacteriologist, Bender Hygienic Laboratory, Albany, N. Y. (1901-1903); Pathologist to the Samaritan Hospital, Troy, N. Y., etc. Third Revised and Enlarged Edition. Philadelphia. F. A. Davis Company. 1930. Octavo of 282 pages. Illustrated with forty-three engravings and one colored plate. Cloth. Price, \$2.25 net.



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## Editorial

### Fever Therapy.

Internal medicine awaits the results of investigation of the value of the production of fever for therapeutic purposes. Suggestive and promising results have been attained but a cautious and conservative state of mind should be maintained as the evidence comes in for and against this procedure. Like every new procedure that is attended by unexpected success, enthusiastic champions are quickly prone to claim unwarranted virtues and powers for the new found process, and, by the same token, are tempted to assign to the new found agent greater power than subsequent events verify. These generalizations on scientific cautions, however, are not to be taken as mental antagonisms, but on the contrary, a willingness to engage in a studious reception of the rather new procedure.

It should be recalled, however, in referring to "fever therapy" as a new procedure that, while it has been recently demonstrated in relation to thrombo-angiitis obliterans, the therapeutic use of non-protein injections, both intravenously and intra-muscularly for its reaction upon the sick body, has been used for a number of years, reaching back to the early days of typhoid vaccine and gonorrheal vaccine administration. It is recalled by practitioners: the advantage in chronic inflammations of joints sometimes derived from the intravenous injections of killed bacteria of typhoid in limited and counted numbers and administered through a period of time. For instance, the use of non-specific proteins was found to be useful, more or less, in various forms of subacute and chronic, if not in some

acute cases of arthritis, as shown by the well-known observations of Miller in some eighty cases reported years ago. The initial dose employed was some forty million typhoid bacilli, intravenously, and this dose was spaced to suit the fever production and was increased to some one hundred and fifty million for this purpose. Likewise, in gonorrheal infections characterized by arthritis and epididymitis, the intravenous use of non-specific protein injections were employed with more or less success. It was in this type of subacute or chronic infection that milk-injections intramuscularly, as well as typhoid vaccine, were used with salutary effect. The chill and fever following these injections appeared to bring about a definite change of convalescence in joints and tissues that seemed to be about to resolve into permanent pathologic alterations. Iritis, likewise, particularly, was treated with intramuscular injection of milk. Not only so, but such stubborn conditions as chronic skin infections have been attacked by foreign protein therapy, with more or less success. The underlying factors involved in the defenses of the body in such persistent infections in joints, in the iris and on the skin are not understood, but the facts remain that astonishing and often spectacular "cures" have been accomplished in spite of the unsettled state of the knowledge of the mechanism at work.

### NEWER INVESTIGATIONS

Production of fever for therapeutic purposes is now being studied with renewed interest at the Mayo Clinic. Here it has been brought to the front in the striking results obtained in the treatment of occlusive forms of vascular diseases of the extremities. Heretofore, gangrene of the feet as depicted and described by Buerger has been largely surgical in its treatment. Amputation of the toes and sometimes of the leg were often necessary to arrest the acute occlusive processes. One should realize that the incidence of thrombo-angiitis obliterans (or Buerger's Disease) is far greater than heretofore estimated. Vaso-motor disturbances of the vessels of the extremities that may antedate the complete occlusion of the lumen of the vessels often bring changes in color of the feet as well as painful attacks of the extremities. In such conditions and also in actual arteriosclerotic changes in the vessels of the extremities that have pre-

vented adequate circulation to the parts, "fever therapy" seems to offer a new hope. Such patients are often the despair of practitioners. Such patients are naturally often found among the working classes, whether in the city or country; although the Jewish race is said to often exhibit signs of Benger's disease. Blood poison of the extremities, gangrene of the toes or foot, atrophic ulcers of the feet, make a group of maladies that involve, after all is said, the vascular supply to the affected parts and it is to improve this important feature of the diseased area that fever therapy is directed and practiced.

Allen and Smithwick have emphasized a method in these diseases and, at this time, it is believed to be the best method of attack upon these conditions. It is thought that the beneficial reaction comes about as a result of the vaso-dilating response on the part of the surface arterioles and this is shown by a "sharp increase in surface temperature" which is of greater magnitude than increase in the temperature of the blood, and by the definite analgesic effect on the pain which is felt in trophic ulcers and in gangrene of the feet. The relief of pain in fever production therapy has been most salutary. Morey and Brown\* of the Mayo Clinic have recently remarked upon the pitiable condition of these patients suffering terribly from various stages of thrombo-angiitis obliterans. Many of the patients in former days were subjected to amputations but during the past five years, the medical procedure has sharply reduced the number of amputations. These clinical workers have more recently endeavored to work out a method of eliminating untoward effects of "fever therapy" in these patients. When one knows that their conclusions as to methods are based upon more than twenty thousand injections, physicians and surgeons alike, having to deal with a far less number of such patients, may well accredit their observations as the "best opinion" of the day.

The chief untoward effect that was studied with the purpose of reducing it was the chill and the chief aim of the treatment was to prolong the fever. Violent reactions, in other words, were avoided, if possible. It was found that triple typhoid vaccines, intravenously

given, failed to produce adequate fever response and, at the same time, gave an abnormal amount of shock and, it was thought that the nitrogen content of these vaccines was the cause of this untoward effect. Certain typhoid vaccines were studied by these workers with the purpose of finding antigens that were fever-producing in thrombo-angiitis obliterans. Again, effort was made to develop, for these cases, a vaccine which could be used intramuscularly producing a fever without a chill. A water-in-oil isotonic emulsion, by aid of Lilly laboratories, containing a large amount of a potent paratyphoid-B Vaccine, was produced and tried. The strength of this vaccine preparation was made so that each cubic centimeter contains 7,500,000,000 killed organisms. Satisfactory reactions were gotten with this preparation. High fever was not produced by it (frequently not higher than 99° F.) but there was marked relief of pain in the extremities and the patients were conscious of increased heat over the diseased parts. There were no chills. They state that one hundred per cent of relief from pain of gangrene was obtained in several cases after the second or third injection.

Practitioners may find in this work a promising field of therapy in patients with vascular disease of the extremities. Even in arteriosclerotic changes in old patients who show signs of vascular occlusion or of gangrene, this late form of intramuscular administration of this emulsion preparation of paratyphoid-B Vaccine may offer considerable hope of benefit. "Fever therapy," as illustrated in these types of vascular disease, with the distinctly favorable results obtained by Morey and Brown, at the Mayo Clinic, would seem to hold out possibilities in those cases which, heretofore, over the past decade, have received other non-specific protein treatment.

### Nervous Indigestion.

As progress is made in medical and surgical prevention of the more malignant or grosser forms of medical and surgical pathology, with their evident array of more or less obvious symptoms, there is a realization, on the part of the practitioner, that "the neurotic," the neurasthenic, or hypochondriac patient suffers somewhere or somehow with physical conditions worthy of scrutinizing search. It is reasonable to look to the day when prac-

\*Proceedings of Staff Meetings of the Mayo Clinic—November 27, 1929. Morey and Brown. Page 343.



tioners will give a closer inquiry to complaints or symptoms arising in the body in which gross pathology of obvious degree is not to be found. In the realm, then, of symptoms arising from misfunction rather than from pathologic changes, there is a big proportion of patients who are seeking relief from practitioners the country over. Probably much of addiction to quackery, narcotic drugs, and the like, is due to the fact that the medical profession has failed, as yet, to evaluate these matters in their true relation. With these generalizations, one may turn for a moment to the so-called "nervous indigestion" group of patients for illustration. The crabbed, despondent, cynical, irascible, irritable, pugnacious, impatient patient with "nervous indigestion" is a real problem for the practitioners. The treatment of such patients demands an "executive session," in which a most complete examination of the general body must be carried out. Superficial and trivial examination is not only of little worth but begets failure. Alvarez\* has covered this problem in a paper that practitioners may profitably read and follow.

The plan of treatment of these cases involves psychotherapy and instruction in mental and physical hygiene, physiotherapy, exercise and massage, diet and drugs.

Before treatment begins, accurate and complete diagnosis must be made to be sure that organic disease does not lie in some remote part as a cause of the "neurotic symptoms." Utmost care must be exercised in studying the daily routine of the life of the patient, in periods of decades and not in days just preceding the time of consultation.

### Emptying of Stomach Contents.

Beaumont, Pavlov and Cannon, distinguished physiologists, have worked over this problem. Each has added his part in the effort of arriving at the solution, if solution there can be to such a varied and changing problem in digestion. Hawk, Rehfuess and Bergein have also contributed notable studies. During the past decade, we know the motility of the stomach, or motor function of the stomach, has taken a more prominent place in investigation of gastric function. Formerly, the secretory function, or the chemical action of the ferments and secretions of the stomach on the food contents,

occupied the foremost position. It has been apparent, however, that the time element involved in the retention of food in the stomach plays a big part in problems of the conversion of gross food as received into the alimentary tract and food elements ultimately found in the blood and lymph. Not only so, but more immediate is the matter of evacuation of food from the stomach in disordered stomachs, in a diseased body, and after surgical operations. One must appreciate the extreme importance of the stomach in all medical and surgical problems. One must understand what the stomach can and cannot do; when it helps and when it hinders in these conditions daily before practitioners. So our readers may note with interest the preliminary report of Wilson, Dickson and Singleton (*Archives of Internal Medicine*, December, 1929, page 787) on the note of evacuation of various foods from the normal stomach.

### ACID CONTROL

Pavlov and Cannon have explained differences in rate of evacuation by the hypotheses of acid control of the pylorus. These authors give a brief resume of the question of acid control of physiologists, and they bring out the recent view that acid control is not the only factor, or even the principal influence in determining the rate of emptying of the stomach, and they emphasize the importance of studying other factors involved.

### PHYSICAL AND OTHER FACTORS

Gruel leaves the stomach more rapidly than dry carbohydrates; minced meat leaves the stomach faster than large lumps of meat. Physical exercise and posture influence it; carbon dioxide content of the blood is a factor; the rate of the utilization of glycogen affects it. The emotions change the emptying of the stomach. Colonic irritation influences it. Smoking and drinking water with meals delay or increase emptying of the stomach contents. Certain drugs, such as strychnine, atropine, caffeine, and alcohol, affect emptying time of the stomach. Finally, other factors are at work in this important act in the digestion of food. The probability that peristalsis of the stomach and the emptying of its contents is influenced materially by increased fat in the blood after a fat meal, is one of interest to these investigators. They reach the general conclusion from experiments, that the

\*J. A. M. A. 1927. LXXXIX, pages 440-445.

emptying of the stomach depends on two factors: peristalsis of adequate depth and consistency of the meal. They note that all liquid meals start to leave the normal stomach as soon as ingested, this regardless of composition, and that most solids commence to leave as soon as they reach the pyloric sphincter. They observe that after the first few minutes, proteins are evacuated more slowly than carbohydrates, and fats emptied most slowly. In closing, they say that in case of the fats, the delay is due possibly to depression of muscular activity by products of fat digestion circulating in the blood.

Such studies, the preliminary reports of which are above noted, help the practitioner in his daily work of treating problems of digestion and in advising the patient in regard to the manner, method, and nature of routine feeding.

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## News Notes

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### Writings of Virginians Desired by the Virginia Bureau of Mental Hygiene.

An observant visitor to the headquarters of the Virginia Bureau of Mental Hygiene, a recently created division of the Department of Public Welfare, in the Virginia Hospital Building on Clay Street, Richmond, is impressed with the evidence of a good beginning of a select collection of interesting and valuable books and monographs on Mental Hygiene and kindred subjects. There are writings on psychiatry, neurology, epilepsy, feeble-mindedness, psychology, psychiatric social service, criminology, delinquency, behavior problems, prevention of mental disorders and delinquency. There are also current medical journals, bibliographies and reports of institutions which add materially to the value of the little library.

The Bureau desires especially to have in its collection books and reprints of articles on the foregoing subjects, published by Virginia authors. It would like to make the Bureau a place for the collection of such writings by Virginia physicians. The Bureau desires not merely recent material but past publications by Virginia physicians relative to these several subjects. There are, doubtless, scattered in libraries of physicians throughout the State many pamphlets and interesting books on these

subjects written by Virginians that would be of very special interest. Any physician in the state would be doing good service to communicate with Dr. W. F. Drewry, Director of the Bureau of Mental Hygiene, relative to this special literature which he desires.

### The Virginia Tuberculosis Association

Is to hold its annual meeting in Roanoke, on February the 28th. On this occasion, Dr. Kennon Dunham, of Cincinnati, will be the chief speaker. Dr. Dunham, who is well known to the medical profession for his outstanding work in tuberculosis, is a forceful and interesting speaker and frequently appears on the programs of the National Tuberculosis Association. He has chosen as his subject: "Chronic Non-Tuberculous Lung Lesions."

The business session of the Virginia Tuberculosis Association will be held on the morning of February 28th, Dr. Dean B. Cole, president, presiding, and in the afternoon there will be a round table on the subject of tuberculosis programs. Among the speakers at the afternoon session will be Dr. P. P. Jacobs, of New York.

The evening meeting will be a joint session with the Roanoke Academy of Medicine. In addition to Dr. Dunham's address the Academy will also have a speaker, whose name and topic will be announced later.

All physicians and others interested in the tuberculosis problem are invited to attend any and all of these sessions of the Virginia Tuberculosis Association.

### Substandard Ether is Seized by Government.

The largest shipment of ether for anesthesia ever detained by the Federal Government was seized at Bayway, N. J., recently after laboratory tests had shown that samples from a lot consisting of 108,300 quarter-pound tins were below the standards required under the Federal Food and Drugs Act. This ether did not meet the requirements of the U. S. Pharmacopoeia, which is the standard designated by the Food and Drugs Act for drugs in interstate commerce or imported from abroad.

The seized ether is part of a lot made during the World War for the Government. It was in storage until 1926, by which time it had deteriorated to such degree as to be unfit for use as an anesthetic. The War Department then sold it at a low price under bond that it was not be used or resold for use as an anes-



thetic but only for technical purposes, such as in laboratories, for dry cleaning, or for fuel in starting motors. Contrary to the terms of the bond, some of this ether, labeled as anesthetic ether, was consigned to hospitals in small lots. These small lots were seized at once. Now this large shipment has been removed from the channels of trade by action under the Food and Drugs Act.

#### **Dr. R. Finley Gayle,**

After a partnership for a number of years with Dr. Beverley R. Tucker, Richmond, Va., has taken up independent work and opened offices in Suite 406 Medical Arts Building, this city, on January the 1st. Dr. Gayle will continue to limit his work to neurology and psychiatry.

#### **Married.**

Dr. William LeRoy Dunn and Dr. Thelma Flournoy Brumfield, both of the class of '26, University of Virginia, Department of Medicine, in Farmville, Va., December 26th. Mrs. Dunn, who is a daughter of Dr. and Mrs. W. A. Brumfield, will continue her work in connection with the Pathological Department of the University of Virginia, for the rest of this session. Dr. W. L. Dunn, who since graduation has been serving as an intern at St. Luke's Hospital and at Bellevue Hospital, both in New York City, expects to be with the Tuberculosis Department of the State Board of Health for the next six months.

Dr. Frank Ellsworth Tappan, of the class of '28, University of Virginia, Department of Medicine, and Miss Alice B. Ward, Berryville, Va., December 6th. Since graduation, Dr. Tappan has been an interne at Garfield Hospital, Washington, D. C., but is now locating in Berryville.

Dr. Eugene Marvin McDaniel, of the class of '29, Medical College of Virginia, and Miss Edna May Owen, Richmond, December 26th. Dr. McDaniel is now practicing in Martinsville, Va.

#### **Malaria Congress to be Held.**

The second International Malaria Congress is to be held in Algiers, on May 19, 20, and 21, 1930. Information about this Congress may be obtained by addressing the Secretary General of the Congress, at Institut Pasteur, Algiers.

#### **Dr. Churchill Robertson,**

Recently connected with Mount Regis Sanatorium, Salem, Va., is taking special work in

diseases of the heart at the Philadelphia General Hospital. Following his work there, he will spend sometime in New York before returning to Virginia.

#### **The American Public Health Association**

Will hold its 59th annual meeting in Fort Worth, Texas, during the week of October 27, 1930, with the Hotel Texas as headquarters.

Health officers, nurses, dietitians, sanitary engineers, child and industrial hygienists—all of the specialists that make up the public health profession—meet on this occasion to consider their common problems. Each of the ten Sections of the Association—Health Officers, Laboratory, Vital Statistics, Public Health Engineering, Public Health Nursing, Public Health Education, Food, Drugs and Nutrition, Industrial Hygiene, Child Hygiene and Epidemiology—arrange an individual program and there are a number of General Sessions to which the public is invited. Information about this meeting may be obtained from the Executive Secretary, Mr. Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

#### **International Congress for Prevention of Blindness.**

Representatives from 23 nations, including the United States and Argentina from the Western Hemisphere, recently held an International Congress on the Blind at Vienna to draw up agenda, elect officers, and appoint committees for a future international conference to deal with questions relating to the prevention of blindness and the education, employment, and general welfare of the blind in all parts of the civilized world. An executive committee was empowered to decide the date and place for the conference and to approach the League of Nations for permission to hold it under the League's auspices.

#### **Dr. Southgate Leigh Honored.**

The Cosmopolitan Club presented the Gold Medal for most Distinguished Citizenship to Dr. Southgate Leigh, of Norfolk, at a banquet held at the Norfolk Country Club on Tuesday evening, January the 7th. A number of members of the Norfolk County Medical Society and their wives attended this banquet.

#### **Dr. Wood Chairman of Committee on Scientific Work and Clinics.**

Dr. Chas. R. Grandy, president of the Medical Society of Virginia, has appointed Dr. J. Edwin Wood, University, chairman of the Committee on Scientific Work and Clinics of

the Society, to fill the vacancy caused by the resignation of Dr. J. S. Horsley, Jr. Dr. Horsley was unable, on account of pressure of other work, to accept the chairmanship for another year, though he remains a member of the committee.

#### **Dr. Garnett Nelson,**

Of McGuire Clinic, Richmond, Va., who has been critically ill at St. Luke's Hospital, this city, was reported as being better when we went to press.

#### **Public Playgrounds for Turkey.**

A playground has been established at Angora, the capital of Turkey, and the Turkish National Child Welfare Association hopes to be able to make it a training center for recreation workers. In connection with the playground the first swimming pool in Turkey is being constructed.

#### **Dr. A. S. Richardson,**

O'Keeffe, W. Va., who was recently quite ill at Lewis Gale Hospital, Roanoke, Va., suffering from a palmar infection, is home again and has resumed his professional work.

#### **Dr. Tom A. Williams,**

Formerly of Washington, D. C., has returned to Florida after a year in Europe and is limiting his work to neurological consultations. He is located in Monterey Apartments, 1611 Michigan Avenue, Miami Beach.

#### **Dr. K. D. Graves**

Has returned to Roanoke, Va., after practicing for several years in Pearisburg, Va. He recently spent several months studying in Baltimore and New York and is now limiting his work to internal medicine and clinical pathology.

#### **Dr. Julian M. Robinson,**

Danville, Va., was appointed on the staff of John Ashley Jones, commander-in-chief of the Sons of Confederate Veterans, at the recent meeting in Charlotte, N. C.

#### **Mr. Aubrey H. Straus**

Has returned to his laboratory at 613 West Grace Street, Richmond, Va., after visiting and looking into new methods at several laboratories in New York and Washington, D. C.

#### **Dr. W. Hampton Venable,**

Who was made Superintendent and medical director of Piedmont Sanatorium at Burkeville, Va., in the Spring, was in charge of the Tuberculosis Sanatorium in Kuling, China, from 1919 to 1927. Upon returning to the States, he was an assistant physician at

Catawba Sanatorium, Va., until appointed to his present work.

#### **Dr. R. M. DeHart,**

Of the class of '29, Medical College of Virginia, has located at Floyd, Va., where he is engaged in general practice. Dr. DeHart had twelve months' undergraduate internship at the City Home in Richmond, and spent four months at St. Luke's Hospital, this city, before locating in Floyd.

#### **Seattle's Ambition.**

Last year the city of Seattle attained the lowest infant mortality rate of the fifty-four cities in the country with 100,000 or more population according to the census of 1920, its rate being forty-three infant deaths per 1,000 live births in contrast with a provisional rate of sixty-eight for the birth-registration area of the country. But this record does not satisfy Seattle; it wants to lower that record to an irreducible minimum and for that purpose has analyzed its infant-death certificates to discover the important controllable causes. In 1928 three such causes—premature birth, injuries at birth, and pneumonia—were responsible for considerably over half of the infant deaths, and Seattle intends to fight these causes to the best of its ability. The city's present excellent record is due largely to the small number of deaths from nutritional disturbances and acute gastrointestinal diseases and from infectious diseases of childhood.

#### **Officers in Kiwanis Club.**

Dr. Z. V. Sherrill, Marion, Va., was recently elected to the presidency of the Kiwanis Club of that place, and Dr. E. A. Holmes, also of Marion, was elected as one of the directors.

#### **The Church Hill Medical Society,**

Richmond, Va., held its December meeting in the home of Dr. A. Seldes, at which time, Dr. John B. Bullard, by invitation, read a paper on "Allergy." Refreshments were served following the meeting. Officers elected for the ensuing year are: President, Dr. W. H. Whitmore; vice-president, Dr. M. L. Boyle; secretary-treasurer, Dr. R. S. Faris; librarian, Dr. A. Seldes; and reporter, Dr. J. D. Boisseau. All are of this city.

#### **The Seaboard Medical Association of Virginia and North Carolina**

Held its annual meeting in Newport News, Va., December 3rd, 4th and 5th, under the presidency of Dr. Robert A. Davis of that city. The meeting was well attended, and the



program was excellent. Honorary fellowship was conferred upon Dr. James Carroll Flippin, dean of the Department of Medicine of the University of Virginia, who attended and presented a paper on "Pneumonia." Elizabeth City, N. C., was selected as the next place of meeting, and the dates were set as December 2, 3 and 4, 1930. Following is a list of officers elected for the ensuing year: President, Dr. H. D. Walker, Elizabeth City, N. C.; vice-presidents, Dr. James H. Culpepper, Norfolk; Dr. W. Bernard Kinlaw, Rocky Mount, N. C.; Dr. J. E. Marable, Newport News; and Dr. DeWitt Klutz, Washington, N. C. The treasurer, Dr. A. M. Burfoot, Fentress, Va., and secretary, Dr. Clarence Porter Jones, Newport News, were re-elected.

#### **Dr. and Mrs. George J. Tompkins,**

Lynchburg, Va., celebrated their Silver Wedding anniversary, with a lovely reception at their home in that city, on December the 28th.

#### **Sanitation Education Campaign.**

King William County now leads in the Sanitation Education Campaign which was inaugurated by the Virginia State Department of Health in June, 1928. In this county, 80.7 per cent of homes scored. This campaign is mainly educational in character. The individual housekeeper surveys her own home and determines just what conditions are right or wrong, then scores the home on blanks provided by the State Department of Health. The Department has offered a first prize of \$500, a second prize of \$300, and a third prize of \$200 to the counties in the State that show the highest percentage of sanitation of homes by June, 1931.

#### **Dr. Gladys Smithwick,**

Of the class of '25, Medical College of Virginia, and recently at Wallum Lake, Rhode Island, sailed December 21st, from Vancouver, B. C., by *S. S. Empress of Russia*, for China. She has been sent out by the Southern Presbyterian Board of Foreign Missions to Suchowfu, Kiangsu, China, where she will be engaged in medical missionary work.

#### **Scientific Exhibits Being Arranged for A. M. A. Meeting.**

Dr. Paul N. Leech, Director of the Scientific Exhibits for the American Medical Association, has issued forms for application for space for scientific exhibits at the Detroit meeting. Those interested, who have not secured forms,

should send for them at once, as applications for space must be received by the Director before March 20, 1930.

#### **Dr. Margaret P. Kuyk,**

Of Richmond, Va., sailed January the 8th on the motor driven vessel, *Saturnia*, of the Cosulich Line, for travel and study in the countries bordering the Mediterranean. She expects to return home in the late Spring.

#### **To Be With Southern Orthopedic Hospital.**

Miss Isabel Simpson, for more than two years superintendent of Petersburg Hospital, Petersburg, Va., recently tendered her resignation to accept a similar position with the Southern Orthopedic Hospital, which was opened in Richmond, the first of this month.

#### **Southern Surgical Association.**

At the meeting of this Association held in Atlanta, Ga., early in December, under the presidency of Dr. Lucius E. Burch, of Nashville, Tenn., Dr. James M. Mason, Birmingham, Ala., was elected president for the succeeding year, and Lexington, Ky., was selected as the next place of meeting. Dr. Urban Maes, New Orleans, and Dr. Alexius McGlannan, Baltimore, were elected vice-presidents; Dr. Julius H. Taylor, Columbia, S. C., treasurer, and Dr. Robert L. Payne, Norfolk, Va., was re-elected secretary.

#### **The Congress on Medical Education, Licensure and Hospitals**

Will be held at the Palmer House, Chicago, February 17th, 18th and 19th. An interesting program has been arranged, including a number of symposiums on live topics in present day medicine.

#### **Dr. T. Latane Driscoll,**

Richmond, Va., announces that, due to lack of office space, he has moved his offices to 209 Grace Arcade Building, corner Third and Grace Streets, this city.

#### **The First International Mental Hygiene Congress**

Is to be held in Washington, D. C., May 5-10, 1930. Delegates are expected from more than thirty countries. Many subjects are listed on the program with practically all aspects of mental hygiene to be covered.

The American Psychiatric Association and the American Association for the Study of the Feeble-minded will hold their annual meetings in Washington at the same time and

place as the Congress and will be active participants in its sessions.

Papers will be read at the morning sessions and discussions will follow. Afternoons will be given over to meetings of committees, prepared discussions not on the regular program, and recreation and sightseeing. General sessions, designed to appeal widely to laymen, will be held on several evenings.

Dr. William A. White, Washington, D. C., is president of the Congress, and Mr. Clifford W. Beers is Secretary General.

#### **Dr. Paul C. Colonna,**

A native of Virginia and formerly an interne at St. Elizabeth's Hospital, Richmond, Va., was recently appointed clinical professor of Orthopedic Surgery in the University and Bellevue Hospital Medical School, which is the medical department of New York University.

#### **The Tri-State Medical Association of the Carolinas and Virginia**

Will hold its thirty-second annual meeting at Charleston, S. C., February 18-19, 1930, under the presidency of Dr. Cyrus Thompson, of Jacksonville, N. C. Dr. J. M. Northington, Charlotte, N. C., is secretary-treasurer. As usual, this gives promise of being a most interesting and pleasant meeting.

#### **Awards of Radiological Society.**

At its meeting in Toronto, Canada, early in December, the Radiological Society of North America awarded its annual gold medals to Dr. Joseph C. Bloodgood, of Baltimore, Md., for his study in bone malignancy, its diagnosis and treatment by the Roentgen ray and radium, and to Dr. Russell L. Haden, of Kansas City, Mo., for a Roentgen ray study of dental infection.

Dr. Bloodgood is clinical professor of surgery at Johns Hopkins University School of Medicine, and Dr. Haden is professor of experimental medicine at the University of Kansas, School of Medicine.

#### **The Southern Section of the American Laryngological, Rhinological and Otological Society**

Will hold its annual meeting in Roanoke, Va., Saturday, January 18th, at the Hotel Patrick Henry. Besides interesting papers by members, the society will be addressed by the President of the National Association, Dr. Ross Hall Skillern, of Philadelphia.

Dr. Elbyrne G. Gill, Roanoke, Va., is chairman of the Southern Section and will entertain the members and guests at luncheon.

#### **Dr. L. L. Williams,**

Who has been in India since August 1st, where he has been taking part in a malaria survey on behalf of the health work of the League of Nations, has sailed for this country. He will again work in connection with the health department of Virginia. Before going to India, Dr. Williams supervised the study and control of malaria, in connection with our State Department of Health.

#### **Raiford Hospital to be Enlarged.**

Dr. R. L. Raiford, Franklin, Va., has recently purchased the Merchants and Farmers Bank Building in which building he has for the past year been operating a small hospital. The purchase of this building will enable him to enlarge the hospital and make many other immediately contemplated and future improvements. Dr. Philip Jacobson, of Petersburg, will assist Dr. Raiford in the surgical work.

#### **Dr. Raymond D. Kimbrough,**

For the past two years instructor in dermatology and syphilology at the University of Virginia, has located in Norfolk, Va., with offices at 201 West Freemason Street. His work will be limited to the above named branches. Dr. Kimbrough has just returned from New York where he has taken a special course in the department of dermatology and syphilology of the New York Post-Graduate Medical School and Hospital.

#### **Health Conditions Throughout the World.**

Surgeon General H. S. Cumming, of the Public Health Service, has recently submitted to Congress a report which summarizes in an interesting way the health conditions throughout the world during the past fiscal year. This report indicates that one of the important public health duties of the Federal Government is the prevention of the introduction and spread of infectious diseases in the United States from foreign countries.

A constant interchange of sanitary information with other nations of the world was in effect through the International Office of Public Hygiene of Paris, the Pan-American Sanitary Bureau, and the Health Section of the League of Nations. Important epidemiological information was also received by the Public Health Service through American consuls,



officers of the Service stationed abroad and directly from foreign Governments.

**Dr. Judson T. Vaughan**

Has located in Ashland, Va., for the practice of medicine. Dr. Vaughan is a graduate of the Medical College of Virginia in the class of '27 and, for the past year and a half, has been connected with the Tuberculosis Service of the Virginia State Board of Health.

**Dr. J. M. Bishop,**

Who practiced for a time at Appalachia, Va., is now taking special work in pediatrics at the Children's Hospital, of Philadelphia.

**Special School for Handicapped Children, Des Moines.**

A specially designed and equipped school for handicapped children is to be erected in Des Moines. Two stories high and constructed with ramps, it will have facilities for sun-baths, sight-saving classroom, workshop, gymnasium, playroom, and other special equipment. One important object will be to find out the vocational possibilities of each child and train him for a useful life in the community. There are said to be 285 children in the city who are eligible to attend the school because of crippling conditions and other physical handicaps. *The Journal of the A. M. A.* states that it has been made possible through the generosity of two former residents of Des Moines, who have given \$250,000 for the purpose.

**Dr. and Mrs. John L. Thornton**

And young son, of Warrenton, Va., are spending sometime in Tucson, Ariz., Dr. Thornton having gone there for his health.

**Dr. D. Lane Elder,**

Hopewell, Va., has been elected president of the Kiwanis Club of that city for the present calendar year.

**Dr. Stoner Now With Roche.**

Dr. W. H. Stoner, who was formerly Director of the Medical Division Professional Service Department of E. R. Squibb & Sons, has joined the Scientific Department of Hoffmann-La Roche, Inc., of Nutley, N. J., where he assumes the duties of Medical Director. Dr. Stoner brings to Roche a wealth of experience in the medico-scientific world. His works in the field of bio-chemistry and laboratory methods, basal metabolism and diabetes have been extensively reported and for a time (1921-1926) he was Associate Professor of Bio-Chemistry and Diseases of Metabolism at

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The Roche Scientific Department is comprised of men well known in scientific circles everywhere and its staff is capable of dealing intelligently with not only clinical problems but also the chemical, bio-chemical and pharmacological questions related to medicine. Physicians are invited to correspond with the Department whenever special information, whether or not it pertains to a Roche product, is desired.

**The American College of Physicians**

Is to hold its annual clinical session in Minneapolis, Minn., February 10-14th, under the presidency of Dr. John H. Musser, of New Orleans. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, is secretary.

**The Southern Medical Association**

Held a splendid meeting in Miami, Fla., in November, under the presidency of Dr. Thomas W. Moore, of Huntington, W. Va., following which, about 300 members and ladies took advantage of the trip to Cuba. Louisville, Ky., was selected as the 1930 place of meeting with the date as November 11th-14th. Surgeon General Hugh S. Cumming, of the U. S. Public Health Service, Washington, D. C., was elected to the presidency of the Association, with Dr. Roy J. Holmes, of Miami, and Dr. Isidore Cohn, of New Orleans, as vice-presidents. Dr. W. E. Vest, Huntington, W. Va., was made chairman of the Council, and Dr. W. W. Crawford, Hattiesburg, Miss., chairman of the Board of Trustees.

**Dr. E. G. Gill,**

Roanoke, Va., by invitation addressed the Whitehead Medical Society of the University of Virginia, on December the 8th. His subject was "Some of the Problems of Bronchoscopy."

**Dr. A. L. Carson, Jr.,**

Medical College of Virginia, class of '25, has been appointed resident in obstetrics at the Nursery and Child's Hospital, New York City, for a period of one year beginning January 1, 1930. Before going to New York, Dr. Carson was practicing at Thorpe, W. Va.

**Dr. and Mrs. C. A. Amos,**

Alexandria, Va., spent their Christmas holiday in New York City, as the guests of Mrs. Amos' sister and brother-in-law.

**Dr. James N. Greear, Jr.,**

Washington, D. C., has been appointed professor of ophthalmology at Georgetown University School of Medicine, that city, succeeding Dr. John W. Burke, resigned. Dr. Greear is a member of the class of '20, University of Virginia, Department of Medicine, and a member of the Medical Society of Virginia.

**Dr. Walter M. Brunet,**

Of Brooklyn, N. Y., was recently appointed chief of the Cancer Institute of Brooklyn. Dr. Brunet was a native of Petersburg, Va., and graduated in medicine from the former University College of Medicine, Richmond, Va., in 1911.

**Dr. and Mrs. Marshall J. Payne,**

Staunton, Va., spent the Christmas holidays at their son's home in New York City.

**Associated With Dr. Kendig.**

Dr. Allen Lloyd, of the Medical College of Virginia, class of '28, is associated in practice with Dr. E. L. Kendig, of Victoria, Va., during the winter months. Dr. Kendig will be in Richmond part of this time, serving as a member of the State Senate.

**Dr. and Mrs. Henry Clay Smith,**

Of Willamson, W. Va., spent the Christmas holidays visiting in Roanoke, Va.

**Mexico Combats Its High Infant Mortality Rate.**

The Government of Mexico has this year established a bureau of infant hygiene in the Federal Department of Health. The purpose of the new bureau is to reduce the present high infant mortality of the country, which at present takes a toll of 280 infants out of 1,000 born alive in Mexico City and even a larger proportional number in other parts of the Republic.

**For Sale—**

Suite 707 Medical Arts Building, Richmond, Va. On account of the necessity for moving into larger quarters, the present occupant will sell his stock in the Medical Arts Building Corporation at actual cost. This stock entitles the owner to occupancy of Suite 707. Six rooms, including reception room, consulting office, two examining and treatment rooms, laboratory and secretary's office. May be used either as doctor's or dentist's office. Can be easily subdivided. Address answers to Suite 707, Medical Arts Building, Richmond, Va. (Adv.)

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Write Mr. James H. Price, attorney for estate, Times-Dispatch Building, Richmond, Va. (Adv.)

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## Obituary Record

**Dr. John Thompson Graham,**

Of Wytheville, Va., died in a Roanoke hospital, December 16th, following an illness of several weeks. He was born in Pulaski County, Va., May 18, 1864. He was a graduate of the University of Virginia, Department of Medicine in the class of '88, and had been a member of the Medical Society of Virginia since 1890. Dr. Graham had been a member of the General Assembly for several terms and, at time of his death was ranking member of the Appropriations Committee of that body.

He is survived by his wife and one son, Dr. Charles F. Graham, of Wytheville.

**Dr. Albert L. Sibold,**

Newport, Va., was instantly killed, November 2nd, when the automobile in which he was driving was struck by a train. Dr. Sibold was 55 years of age and was a graduate of the Maryland Medical College in the class of '09. He was formerly a member of the Medical Society of Virginia.

**Dr. Harry S. Corey,**

Prominent homeopathic physician of Richmond, Va., was stricken with a heart attack while driving his automobile, December 15th, and died almost instantly. He was 58 years of age and was a graduate of the Boston School of Homeopathy in the class of '96. Dr. Corey had been a member of the Richmond Rotary Club for sixteen years. He is survived by his wife and two sons.



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# Virginia Medical Monthly

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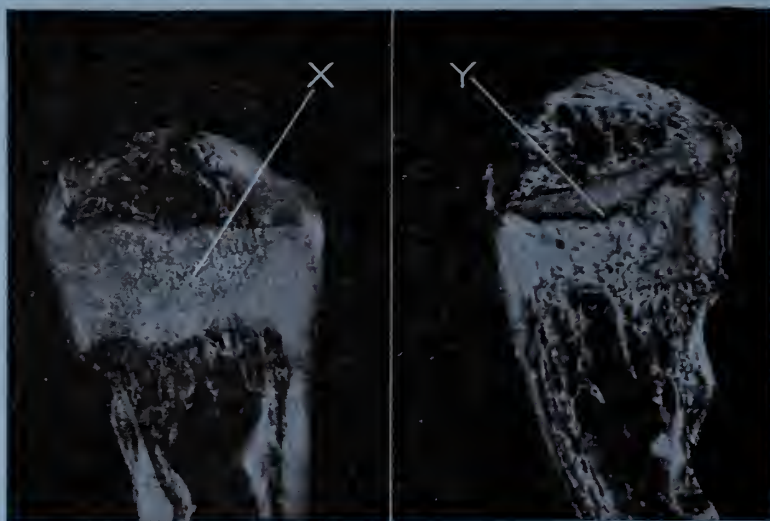
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*Illustrating "Line Test" method of standardizing Vitamin D content. At left, the leg bone of a rachitic rat showing induced decalcification area {X}. At right, healing has begun, as evidenced by initiation of recalcification at dark line {Y}.*



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RICHMOND, VA., FEBRUARY, 1930

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## COOPERATION BETWEEN THE PHYSICIAN AND THE HEALTH OFFICER.\*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

For many years, longer indeed than some of you have been in this world, I have had two ideals—to improve the Public Health, and to increase the efficiency and prestige of the Medical Profession. I have lived long enough to see the public health in Virginia greatly improved, but my second ideal has not been so generally accomplished. The efficiency of our medical graduates has certainly been greatly increased, while many of the older men have made it a custom to keep up their efficiency by going away to take post-graduate work. Nevertheless, there is still a large proportion of our profession who are in need of similar training. The prestige of various groups and specialties, such as Public Health Officers, has undoubtedly increased, as is also true of the general run of the profession in certain localities. On the other hand the profession, as a whole, is being attacked, though I think unjustly attacked, from without, so that it is up to us as a body to work together for the protection of our profession. I am, therefore, going to take the liberty of talking to you for a little while on Cooperation between the Health Officers and the Practicing Doctors.

A short while ago I had the great privilege of listening to a delightful address made by our old friend, Prof. Allen Freeman, formerly Assistant Health Commissioner of Virginia. His subject was the Doctor and the Health Officer. He discussed the many changes that have taken place in the operation of health departments in the twenty-five years in which he has been connected with this type of work. Among the important and interesting things which he brought out was the development of the Infant Welfare Work. He first spoke of the terrible infant mortality which was tak-

ing place at the beginning of this century. He said that at the start the health departments tried to improve it by looking after the milk supplying the babies' food. The dairies were greatly improved, but the desired results were not obtained. Then it was decided to send visiting nurses into the homes, but again the expected improvement did not follow. After this a simple plan was evolved, namely, to have the visiting nurse bring the baby and its mother to a doctor who understood this type of work. From that moment the children's health began to improve and we were able to obtain the great decrease in infant mortality which our health departments consider the outstanding achievement of the century. The nurses did not wait for the babies to become seriously ill before bringing them to the doctor but they brought all the children so that the doctor could prescribe the proper food and the manner of living to keep them from getting sick. Please note that neither the health departments, nor their visiting nurses, nor the doctors alone could produce results; it took cooperation on the part of all three.

The type of work so successfully used in prolonging the lives of the babies is being extended to cover other age groups. First, the school children were regularly examined and an effort made to get them put in the best physical condition. Where defects are found, an effort is made to get the child referred to its own doctor or dentist, who gladly cooperates. Besides this, the Physical Education Department of the schools does its part in building up the body of the child, but only under the advice of the school doctor, who in case of doubt consults the child's regular medical adviser. Here again we have cooperation between the health workers of the school and the private doctor to whom the child is brought before it is really sick, and once more splendid results have been accomplished.

The pediatricians have learned that they

\*Read before the Virginia Public Health Association, in Richmond, January 9, 1930.

must have their little patients brought to them at regular intervals so that they may be able to keep them well. And it is only a matter of time before the other doctors will have all their patients report at regular intervals for health check-ups, for the people are learning that it costs less to have the little defects remedied before getting ill, than to wait until they are in bed before calling their doctors.

We all recognize that the most handy measure of the health of a community and the efficiency of a health department is its death rate. As you very well know the health departments all check up on each others death rates, and a health officer rejoices when he can get a larger decrease in his rate than that of his next-door neighbor. As we have already seen, the greatest reduction in the death rate of the country has been due to the decrease in our infant mortality, which was not brought about until we obtained efficient cooperation between the health department and the private practitioner. Is there any reason why this cooperation should not be extended on all sides and the death rate cut in other fields? This is already true in tuberculosis work where the private doctors have done their full share, and it is practically true, although to a lesser extent, in the case of all infectious diseases, where the private doctor is expected to cooperate, even though he may not be recognized either officially or financially. The question before us is how can a closer, broader cooperation be achieved?

Unfortunately, there have arisen various misunderstandings, and even jealousies, between the health officers and the private doctors which must first be eliminated. Some of these misunderstandings are due to outside influences, for it is now fashionable to belittle the private practitioner and claim that only the specialist really knows anything about medicine. We must, however, remember that we all started out as plain ordinary doctors and that it was only by post-graduate study and experience that any of us obtained distinction. You Health Officers were first graduated as simple doctors, and still are Doctors of Medicine, even though you may be Doctors of Public Health too. The other doctors are primarily just as good as the specialists only they have not developed any particular line of work, while the specialists have largely neglected the parts of the practice of medicine

outside of their specialties. It is the feeling of the Medical Society of Virginia that with a little help the doctors of this State can be made able to take care of any preventive or Public Health measure that may come before them. You Health Officers had first to go off and take a special course before qualifying for your positions. It will not take such a long period of study to bring the general practitioner up to the standard where he can efficiently cooperate with you in the prevention of disease, as well as in the treatment of it. There are, however, two primary difficulties with this proposition: the first is to show the doctor that the change in his methods, which will make him try to prevent disease rather than to cure it, will pay. The second is to educate the people so that they will be willing to pay the doctors to keep them well. All through the country there is a movement on foot to educate the people, by means of the newspapers and otherwise, as to the advantages of keeping well rather than being cured after illness has developed. In this field especially, the health departments can do as they have done in the case of the babies, namely, bring the people to the doctors before they get sick so as to get their small defects in body and manner of living corrected. There is a complaint, however, that this is not at present practicable for the reason that the doctors are not capable of making these health examinations efficiently. The Medical Society of Virginia by its Department of Clinical Education is going to try to furnish its members with practical clinical instruction which will make them entirely capable of carrying out these examinations. Again, cooperation on the part of the health officials is needed, for they are in the position to educate the people to the point where they will be willing to pay for being kept well, and they can also be gotten to go early to the doctor to get their defects corrected.

There is, however, the great problem of the people who are supposed to be too poor to pay a doctor anything. These people are now treated in the clinics and hospitals of the cities, which are in turn supported by the local government or by private benevolence. The doctors of the cities have been giving their time in taking care of the poor people in these clinics. They frequently are tremendously imposed upon in so doing, and have received but



little thanks either from the patients or from the institutions. It is time that at least a nominal wage be paid the doctors for this work, although there are some objections to it.

In the country districts the problem is more difficult. The country doctors are getting fewer and fewer each year, because they are paid so poorly for their services. The problem of getting the patient to the doctor for examination before he gets sick, and therefore is still capable of earning money, should improve the situation. We all know the terrible difficulty of collecting the deferred bill, even from people who are perfectly willing to pay cash for the inspection or repair of their automobiles. They use the excuse that their income has been cut on account of sickness. They will have no such excuse if they come to the doctor for examination when they are still well and able to work.

I am therefore coming to the Virginia Public Health Association, first to ask that it cooperate with the Medical Society of Virginia, which is attempting to give its members a chance to become more thoroughly qualified to do this cooperative health work. As a first step I am asking that the public health officers do their best to boost up the prestige of the local doctors, and not expect them to do their work without remuneration. Show them that you are willing to turn over to them paying patients and that you merely ask that they do their part. Tell the people to trust their local doctors and be willing to pay them as they are now willing to pay for other service. You Health Officers are paid for your work and are appreciated by the people; the local doctors will be better thought of if you insist that they be paid too, instead of being told they owe this duty to the State. I have worked in clinics and elsewhere with paid and with unpaid help. You simply cannot require efficient work from volunteer help. When they do not do well, you merely can smile and hope they will do better next time. With paid help you do not have to be so polite.

I finally am asking for hearty cooperation from all concerned. For the sake of the Public as well as the Profession we need cooperation in the old sense of the word, which means to work together as equal partners, each one being willing to give and take, and put his shoulder to the wheel for the common good.

We are all so fond of using the word, cooperate, but we do not always mean the cooperation which I have just tried to define. We sometimes use the word in the way a wife is said to have used it with her husband, from whom she demanded full cooperation, but really meant that he should furnish the cash and coo while she operated. This type of cooperation, however, practically always leads to trouble and I trust will not be demanded by anyone in the State of Virginia.

And now, my friends, though I have begged you to cooperate personally in every way with the rest of the doctors in the State, I am going to ask you to consider me impersonally, not as a rather disagreeable old man, but merely as the agent of the Medical Society of Virginia, or better still of the Medical Profession. You may simply consider me a voice, perhaps still of one crying in the wilderness, and help prepare a way for full cooperation within the profession to which we all belong. May I ask further that you will adopt the two ideals I presented at the beginning of this address, which now I can combine into one. Let us work together to increase the efficiency and prestige of the Medical Profession, so that we may be able to further improve the Public Health of the State of Virginia.

### MOOTED POINTS IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE GALL-BLADDER.\*

By STUART MCGUIRE, M. D., Richmond, Va.  
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Six years ago I read a paper before this Society reporting 1,000 operations on patients for disease of the gall-bladder. Since then I have operated on 273 additional cases. Based on this experience I desire to discuss briefly some of the mooted points in the diagnosis and treatment of the disease. I will bring up no new questions but the old ones which continue to perplex the surgeon.

#### VALUE OF THE CLINICAL HISTORY.

The fact that I attach the greatest importance to the clinical history makes me critical of the impairment of the value of this useful aid to diagnosis by the two extremes seen in modern practice. One is the reliance on the reports from the laboratories to the neglect of studying the patient; the other is making the

\*Read by title at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, Va., October 22-24, 1929.

history of the patient so complete and exhaustive that it is difficult to sift the positive from the negative findings. Sometimes after talking with a patient and getting a clear-cut history that points definitely to a certain diagnosis, I am later puzzled when I read the typewritten pages of the history taken at the hospital in which the essential facts are submerged by the detailed enumeration of symptoms and diseases the patient never had. Perhaps for the purpose of hospital records the present standard case history should be taken and filed, but the surgeon should personally talk with the patient and give him the necessary time in which to tell his story in his own way. In gall-bladder disease the symptoms will often be classical, but again they may be very indefinite. If the symptoms are due to an inflammatory condition, there will be pain, tenderness, colic, fever and perhaps jaundice. If the symptoms are due to reflex irritation or toxic absorption, there will be vague gastro-intestinal disorders and general constitutional disturbances, such as indigestion, loss of appetite, recurring attacks of headache, and pain, stiffness and enlargement of the joints.

#### · VALUE OF LABORATORY REPORTS.

Examinations of the urine and blood should be made in all cases, but while the occurrence of bile in the urine will indicate an obstruction in the biliary tract, and a positive and differential blood count will give information with reference to the presence of infection and the degree of resistances, the result of these examinations is not of positive diagnostic value. The analysis of the stomach contents after a test meal was at one time thought to give valuable information. It was believed that the irritation of gall-stones almost invariably increased the acid contents of the stomach. It has been learned, however, that hypochlorhydria is as frequently found accompanying the condition as hyperchlorhydria, and I no longer attach any importance to the result of a gastric analysis except insofar as it excludes other diseases. Both the icterus index and the van den Bergh test will show latent jaundice some time before pigmentation of the sclera and skin becomes evident, and the van den Bergh test will differentiate between hepatogenous and hematogenous jaundice, but neither of these tests give evidence on which the gall-bladder may be indicted. The electrocardiogram has reduced the percentage of wrong

diagnoses by ruling out many cases of upper abdominal pain with chronic digestive symptoms, and sometimes even jaundice, which simulate gall-bladder disease closely but which are really due to disease of the coronary vessels and myocardium. The introduction of the X-ray and the demonstration of its ability to outline the kidney and to show the presence or absence of stones in the urinary tract lead to the hope that it would be equally helpful in the diagnosis of diseases of the biliary tract. This expectation for a time was unrealized. The first attempt of the roentgenologist was to photograph the gall-stones themselves, but this proved unsatisfactory. Gall-stones are not calcareous substances but are composed chiefly of fat, and it was found that they could be only visualized on the X-ray film when they contained a certain percentage of lime salts. Experience showed gall-stones could only be demonstrated in from thirty to fifty per cent of the cases in which they were actually present. Hence, while a positive X-ray report was conclusive, a negative report did not exclude the possibility of stones being present.

The next attempt was to photograph the gall-bladder. It was observed that a healthy gall-bladder did not show on the film under ordinary conditions. Therefore, if a distinct shadow could be outlined, such gall-bladder should be considered diseased, as its walls were thickened or its cavity filled with pathologic material. Efforts were made to increase the effectiveness of X-ray to outline the gall-bladder by various expedients, such as pumping air into the peritoneal cavity, but real success was not obtained until Graham introduced his method of making a cholecystogram. This consists in the oral or intravenous administration of a dye which is normally eliminated through the bile and concentrated in the gall-bladder. If there is no diseased condition present and the flow of bile laden with dye is unobstructed, then the gall-bladder can be seen to fill and empty. On the other hand, if a pathologic condition exists, which prevents the bile passing into the gall-bladder, then no shadow can be obtained. If after the administration of the dye the gall-bladder casts a shadow of normal size and shape, and is seen to fill and empty in the proper time, then it is reasonable to conclude it is not diseased. If the gall-bladder fails to cast a shadow because it does not fill with bile, then it is reason-



able to conclude there is some pathologic condition present.

A cholecystogram made by a competent roentgenologist is of the greatest value to the surgeon, but the report should not be considered as final. A negative report will often clear the indictment of an innocent gall-bladder, but a positive report should not be taken as conclusive evidence of the guilt of a diseased one.

We do not know very much about the functions of the gall-bladder and there may be physiologic as well as pathologic factors which influence its filling and emptying. The X-ray report that a gall-bladder was normal has often saved me from doing an unnecessary operation on a doubtful case. The X-ray report that the gall-bladder was pathologic has more than once led me to remove an organ which, perhaps, it would have been better to have left in.

#### TO OPERATE OR NOT TO OPERATE?

The diagnosis of a diseased gall-bladder being established, the next question is the treatment to be followed. There is no doubt of the fact that many patients can be temporarily relieved and benefited by medical measures. Some of the medical "cures" are based on rational therapeutics; others, like an olive oil treatment and the Lyon's internal drainage, are effective owing chiefly to their psychic influence. Gallstones may be quiescent but they are never innocent. Sooner or later they will give trouble. There is no permanent cure for the patient except by their surgical removal.

#### WHEN TO OPERATE?

This is often the most difficult and important question a surgeon has to decide in gall-bladder surgery. Will it be safe in an acute case to treat the patient medically until the virulence of the infection subsides and an operation can be done under more favorable conditions, or will it be better to operate at once and relieve pain, stop septic absorption, and remove the danger of gangrene and perforation? I can remember scores of acute cases that were kept in the hospital under medical treatment for one or two weeks and then safely operated on when the disease was quiescent. I can remember others whose symptoms were so urgent that an immediate operation was done and whose lives were undoubtedly saved by prompt intervention. On the other hand, I can recall patients who apparently died be-

cause of delay, who might have recovered if they had been promptly operated on, and others who apparently died because of undue haste, who might have recovered if they had first been treated medically. There ought to be some general rule to guide us in these cases, but at present there is none, and the best a surgeon can do is to settle the question to the best of his ability in each individual case. Personally, I do not believe that infection of the gall-bladder presents an emergency at all comparable to infection of the appendix, and unless a case of cholecystitis is attended by symptoms that cause alarm, I am in favor of waiting until the acuteness of the infection subsides.

#### CHOLECYSTOSTOMY VERSUS CHOLECYSTECTOMY.

In the early period of my work practically all of the gall-bladders were drained, while in more recent years practically all of them have been removed. The change from an almost routine cholecystostomy to an almost routine cholecystectomy was based not only on the altered opinion of the surgical profession but on personal experience as well. Cholecystectomy is certainly a more difficult operation to perform than cholecystostomy, and at first it was hard to believe it could be done with less risk to life and that the patient would suffer no bad results from the sacrifice of the organ. With a little experience, however, I found the operation comparatively simple and safe. Convalescence was quicker and freer from complications, and, most important of all, the patients remained well. My figures showed that eight per cent of the patients whose gall-bladders I had drained came back to me for a second operation. I do not know how many went to other surgeons. On the other hand, practically all the patients whose gall-bladders I had removed remained permanently well. I now do a cholecystectomy on all patients except those whose general condition is so bad from sepsis, cholemia or other causes that they will only bear the gentlest and quickest procedure, and those in which the gall-bladder and adjacent structures are so acutely inflamed that it seems safer to drain as a preliminary operation. Patients who are drained are warned that they may have further trouble, and many of them are operated on a second time and the gall-bladder removed before they leave the hospital.

#### QUESTION OF REMOVING AN APPARENTLY NORMAL GALL-BLADDER.

In my series of operations gall-stones were present in about three-fourths and absent in one-fourth of the cases. For some reason it is always gratifying to a patient and the family to learn after an operation that gall-stones had been found and removed. The larger the stone or the greater the number, the more the satisfaction. The surgeon, however, knows that the formation of gall-stones is merely an incident associated with gall-bladder pathology. It is a fact that some of the most obviously diseased gall-bladders I have ever drained or removed contained no stones. No one questions the propriety of removing a diseased gall-bladder, although it contains no stones, but what should be done if in operating on a supposed case of gall-bladder disease the surgeon finds an apparently perfectly normal gall-bladder? All of us have had such an embarrassing experience. In my early work I frequently contented myself in such cases with removing the appendix and closing the abdomen. Most of these patients did not get permanently better. With increasing experience and fortified by the practice of my surgical friends, I now unhesitatingly remove these apparently innocent gall-bladders, provided the search of the abdomen reveals no other cause for the patient's symptoms. As previously stated, in certain cases I have had cause to regret not removing an apparently normal gall-bladder, and, since I have become more radical, whatever compunctions of conscience I may have felt at the operating room table have been relieved later by examination of the specimen in the laboratory where small stones that could not be palpated were found or other evidences of infection were demonstrated. During the preliminary examination of a patient to determine the advisability of an operation every possibility of an error should be carefully and maturely considered, but, if the question is decided in the affirmative, the conclusion should be regarded as final. The operating room is not the place for indecision and hesitation.

#### DISCOVERY OF UNSUSPECTED STONES DURING THE COURSE OF AN ABDOMINAL OPERATION.

Whenever the abdomen is opened by an incision large enough to permit the introduction of the surgeon's hand, the gall-bladder should be palpated unless there is danger of carrying infection from the lower to the upper abdomen.

In following this practice, unsuspected gall-stones are often found. In a few cases it may seem wise to remove the gall-bladder while the patient is on the table. If this course is followed, it is a temptation to grasp the gall-bladder with one hand and cut down on it with the other, but the safer practice is to complete the first operation, close the incision and protect it with a dressing before making a second incision.

In most cases when unsuspected gall-stones are found it will be best to leave their removal for a future operation. A double operation entails more risk than the combined mortality of the two single operations, and the responsibility of doing it in this instance has to be taken by the surgeon without conference with the patient or his family. While the law holds that a patient by the act of submitting himself to an operation authorizes the surgeon to do whatever in his opinion is found necessary, it is a wise policy for the surgeon to avoid the danger of criticism whenever he can conscientiously do so.

#### TECHNIQUE OF OPERATION.

The time limit of this paper will not permit me to discuss in detail the various questions with reference to the technique of doing a cholecystectomy. I shall, therefore, bring them up for discussion by describing the methods I have adopted. The anesthetic I employ is the gas-oxygen-ether sequence. Ether is so safe and satisfactory that I have little patience with the claims made for the substitutes proposed for it. The patient is placed in the dorsal position on the table. I have discarded pads or pillows under the back and other forms of angulation as they embarrass respiration and do not give better exposure. The incision I use is a straight upper right rectus beginning at the margin of the ribs and extending far enough down to give an ample field for operation. In case of doubt as to whether the patient has cholecystitis or appendicitis, I do not make an incision over the appendix and palpate the gall-bladder, but make the incision over the gall-bladder and hook up the appendix, thus being able to inspect both. After the abdomen is opened, before I palpate or inspect the gall-bladder, I make a complete examination of the other abdominal organs, and generally remove the appendix before I yield to the temptation to examine the gall-bladder itself. The gall-bladder is exposed by traction



on the right side of the incision with a retractor and the displacement of the bowels and other viscera on the left with a pad of gauze held by the flat hand of the assistant. The fundus of the gall-bladder is grasped by a pair of forceps and the organ drawn downward and then upwards, thus rotating the liver and exposing the ducts. The peritoneum and fat over the cystic duct and artery are then stripped off by blunt dissection and both duct and artery are clamped by three right angled forceps placed close together. The duct and artery are then divided between the forceps so as to leave two forceps on the distal and one on the proximal side. The gall-bladder is then removed from its bed by sharp dissection beginning at its neck and ending at its fundus. An effort is made to leave a margin of peritoneum on each side which can afterwards be sutured so as to cover over the raw surface on the liver. The cystic duct and artery are then doubly tied with catgut. The first ligature is placed beneath the lowest forcep which is removed as it is tightened. The second ligature is similarly tied below the remaining forcep. No effort is made to ligate the duct and artery separately or to cover over the stump. The refinement in dealing with these structures, advised by many surgeons, has been found to be time consuming and unnecessary. I drain all my cases with a strip of soft rubber tissue, and I do not hesitate to reinforce this with gauze when there is slight persistent bleeding which is difficult to control. I realize the force of the arguments advanced against the use of drainage in these cases, but personally I have never felt it could be omitted without serious danger to the patient. This view has been confirmed by conversations with other surgeons, several of whom have told me that at one time they gave up drainage but had been forced to go back to it because of the calamities that had resulted in their practice.

Owing to the use of drainage and the anatomical structure of the parts, there is more danger of infection and greater possibility of hernia after operations on the gall-bladder than after other abdominal operations; consequently, the wound should be closed with unusual care. I suture the various layers of the abdominal wall separately with chromic catgut and reinforce this by figure of eight silk-worm-gut stitches that include the skin, fat and fascia.

The average confinement of my patients to

bed after a gall-bladder operation is three weeks, and the average stay in the hospital is four weeks. When the patient returns home he is given typewritten instructions with reference to his future mode of living, and is also advised to place his case in the hands of his family doctor.

#### FACTORS INFLUENCING MORTALITY.

In the series of 1,000 operations on the gall-bladder reported in a former paper the mortality was 6.7 per cent. In the 273 additional cases recorded in this paper the mortality was 2.2 per cent. The lower death rate is partly due to increased experience, but is chiefly due to the fact that the patients were operated on earlier and were better risks. The proportion of cases with stones in the common duct was much reduced, and the complication which came from neglect, such as abscesses, fistulae and secondary diseases of the liver were rarely encountered. With the improved knowledge and efficiency of the general practitioner and the increased information of the laity in matters pertaining to medicine, diseased conditions are recognized earlier and patients are brought more promptly to the hospital. The surgeon now rarely sees the huge abdominal tumors, the large stones of the bladder, the advanced cases of cancer of the breast, the chronic cases of suppurative osteomyelitis and the neglected cases of appendicitis and cholecystitis which were so common in a previous generation. Surgery is becoming easier and safer each year and surgeons are becoming standardized. In the old days there were two or three surgeons in each state whose names were a household word. Now there are hospitals in every town and city and hundreds of surgeons of almost equal ability who do good and efficient work. Fortunately for the mass of people, the day of the great individualist has passed and the average surgeon is now competent to care for the needs of his community. The work of the general surgeon still offers a field of useful service with adequate compensation, but it no longer offers the opportunity of great fame and fortune. Happily for the ambitious, these are still to be found in the work of original research and scientific investigation. While no man in the future will ever occupy the position in the hearts and minds of his countrymen of the great pioneer surgeons, there are some men living today who, because of their great discov-

eries, will have their names go down in history with those of Pasteur, Lister, Long, Koch and Roentgen.

### CONTINUOUS IRRIGATION THERAPY IN INFECTED WOUNDS.\*

By LINWOOD D. KEYSER, M. D., F. A. C. S., Roanoke, Va.

During the World War the treatment of infected wounds forced itself upon surgeons as a problem of supreme moment. Of the numerous efforts to solve this problem the development of the Carrel-Dakin technique probably gained most prominence. One often wonders why this excellent method has gradually but certainly passed out of general usage at the present time. It is true that the indications for the employment of the technique are not so frequent, but on the other hand, the opportunity for the treatment of draining wound cavities occurs often enough in civil practice and our usual methods are inadequate enough to stimulate some effort at improvement. As a source of annoyance to the surgeon and of economic and psychic strain to the patient, nothing is more disconcerting than a prolonged draining abscess cavity, whether the site of this be the abdomen, the pleural cavity, or infected bone.

In 1925 the following clinical experience aroused my interest in the problem. At that time there was admitted to my service at the Roanoke Hospital, a female child, eight years of age. She had been in good health until about two weeks before admission when she was seized with severe abdominal pain, vomiting and fever. Her temperature had been as high as 104 degrees F. For a few days she had seemed to improve but the abdominal pain persisted and three days before she came under my care her temperature had risen again, her abdomen had become swollen, and the family physician insisted upon her being brought to the hospital. When I first saw her she had a large fluctuating mass in the abdomen to the right of the umbilicus. The temperature was 103 degrees, the leucocyte count 22,000. The pulse was rapid and facies pinched. In short, she presented the classical picture of abdominal abscess with extreme sepsis, probably from a ruptured appendix.

Under nitrous oxide anesthesia a right rectus incision was quickly made, a gush of thick yellow pus being encountered upon opening the

peritoneum. The abscess cavity was emptied of about one and a half pints of pus and three Penrose cigarette drains inserted, little effort being made at exploration. Within twenty-four hours the patient began to rally, her temperature and pulse dropping sharply to within a normal or slightly febrile range. The drainage was removed within a few days but for ten days an abundant amount of pus poured from the wound. At this time we began irrigating the wound with a warm 1-5000 potassium permanganate solution, this being done several times daily. While the drainage subsided to an appreciable extent, we realized after a few days, that the cavity of the wound would require a number of weeks for healing. During one of the irrigations, it occurred to us, that we might place two urethral catheters into the wound cavity and allow a solution of warm permanganate of potash to be flushed through the wound, every few hours during the day. This was done, one of the catheters being attached to an infusion apparatus, the other serving as an outlet for the fluid. The result was striking even after the first twenty-four hours. In a few days the catheters were removed leaving a small sinus tract from which only a small amount of seropurulent material escaped each day. The patient left the hospital within two weeks after the institution of this treatment. The result while not convincing, stimulated us to outline a procedure for the continuous irrigation of such walled off abscesses, when a similar opportunity arose again.

Sometime later, a young woman presented herself with a left tubo-ovarian abscess, which was removed at operation. Convalescence was satisfactory for ten days when a secondary abscess developed in the left iliac region. This assumed such proportions as to require incision and drainage through a left McBurney incision under nitrous oxide anesthesia. An abundant drainage of pus was established, a split rubber tube and several Penrose cigarette drains being placed. Within three or four days a small fecal fistula developed, probably from the sigmoid, and the entire wound became infected. A period of ten days elapsed during which time we used frequent hot wet dressings of potassium permanganate solution, 1-5000. The drainage material in the wound was changed frequently. Feeling that by this time our sinus tract to the sigmoid had been well

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walled off, we set up the continuous irrigation apparatus and applied it to the wound in essentially the manner we have since used. Within a few days the wound had taken on an entirely different aspect, fecal drainage was almost absent, and fresh healthy granulation tissue appeared at all sides of the sinus tract. The patient was dismissed from the hospital in about two weeks with the wound entirely healed and there was no recurrence of the fecal fistula.

The apparatus used and its application may be described as follows. From an irrigation stand a glass infusion bottle (Fig. 1, A) is hung. To the outlet of this, a rubber tube (Fig. 1, B) is attached. This tube carries a



Fig. 1.—Continuous irrigation apparatus set up to show its constituent parts. See text.

screw-type stop-cock (Fig. 1, C) by which the flow of the fluid can be regulated. To the end of the rubber tubing B is attached a drip apparatus (Fig. 1, D) such as is used with the usual Murphy drip outfit. To the drip apparatus is attached a second rubber tube (Fig. 1, E) which is attached by a glass adapter (Fig. 1, F) to a rubber tube (Fig. 1, G). The tube G is, in turn, attached to a glass adapter (Fig. 1, H) by means of which this entire first portion of the inflow apparatus is connected with the inlet urethral catheter (Fig. 1, I). This urethral catheter is inserted into the wound after all drainage material has been removed, the size of the catheter (I) being from 10 F to 20 F, depending upon the size of the sinus tract. A second catheter (Fig. 1, J) is placed beside the catheter (I) in the wound and serves as an outflow tube. Several additional perforations may be placed in this catheter (J) to insure better outflow, provided these perforations

are at a level below the skin surface. Both of these catheters are placed snugly but without force or trauma into the depth of the wound cavity and are tied in place with a strand of silkworm gut, which is, in turn, attached to one of the stay sutures used in closing the wound (Fig. 3).

The outlet catheter is attached by means of an adapter (Fig. 1, K) to a rubber tube (Fig. 1, L). The tube (L) hangs over the bed. In



Fig. 2.—Continuous irrigation apparatus as applied to wound. Note level of drip apparatus just above level of wound. A ureteral catheter is here being used as inlet tube.

our earlier cases we allowed this tube to pour its contents by gravity into a large bottle (Fig. 1, M). This was fairly satisfactory but not infrequently the drainage through the outlet tube failed to compensate for the amount of fluid passing into wound, so that profuse wetting of the dressings and pooling of the fluid in the bed became a source of annoyance. Therefore, we have more recently attached the outflow tube (L) to a suction bottle in which a very slight vacuum is maintained by means of a Gray's suction pump, which is connected to a running water faucet.

Such an arrangement is shown in Fig. 4,

where we see the outlet tube (L) connected with the aspiration apparatus, consisting of the bottle (M), and the pump (P). Figure 5 shows the detail of the suction pump (B) connected to the faucet (A). Here a rubber tube (C) leads from the bottle. By turning on the water the pump aspirates air from the bottle and creates a vacuum, the negative pressure of which can be controlled by the rate of flow of the water.

Figure 2 shows how the irrigator is applied to a wound in practice. The drip apparatus (Fig. 2, C) is adjusted at a point about 2 inches



Fig. 3.—Detail of application of inlet and outlet tubes to wound cavity.

above the level of the wound and a steady drip of the solution is started from the infusion tank above. A rather rapid drip (2-3 drops per second) is usually used. When the cavity of the wound begins to fill with fluid, the suction pump is started and just such a rate of flow of water through the pump is maintained as will prevent an overflow. In this manner the irrigating fluid and effete products of suppuration are gently aspirated from the wound, being drawn into the vacuum bottle. Copious dressings are applied around the catheters, care being taken not to constrict them. Several large pads are placed and the entire dressing held in place by adhesive tie straps. From time to time the irrigating tank is replenished with fluid and the aspirating bottle emptied. In this manner, during a period of twenty-four hours, several gallons of irrigating fluid may be passed through the wound cavity at a pressure which even without the aspirating apparatus would be just enough to cause an overflow.

It is true that the dressings become wet in spite of the aspiration and the outer layers of gauze must be changed several times during the day. However, this is no more frequently

required than the usual changing of dressings which is necessary in any management of such wounds, with which I am familiar. The whole apparatus is inspected hourly by a nurse and the patient himself is instructed to cut off the irrigator by means of the stop-cock and to call as soon as he notices the dressing becoming saturated or his bed becoming wet. Since using the aspiration bottle we have had little trouble from this source. On the whole, the adjustment of the rate of inflow and outflow of the fluid, while requiring a certain amount of extra attention on the part of the nursing and resident staff, has not proved difficult or unsatisfactory and has not required the constant presence of a special nurse. The whole apparatus, including the catheters in the wound, is disconnected, cleaned, sterilized, and reapplied by the house officer, once in twenty-four hours.

As for the irrigating fluid we have had several in use. Potassium permanganate, in strength of 1-5000, has been chosen in especially filthy and putrid abscess cavities. Its properties as an oxidizing agent and general cleanser have been utilized. To promote granu-

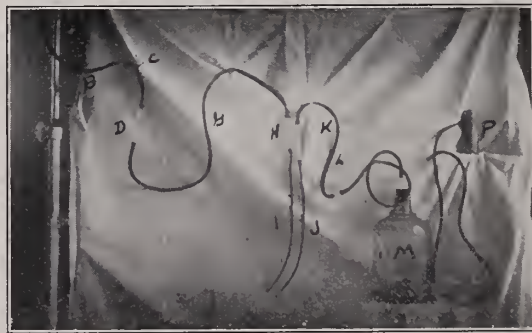


Fig. 4.—Continuous irrigation apparatus set up to show detail of parts. The suction pump (P) and aspirating bottle (M) are shown connected with the outflow tube.

lation after gross infection has been overcome and sloughs have separated, we have felt that an isotonic or slightly hypertonic solution, non-toxic and non-irritating, would be ideal. Locke's solution, Ringer's solution, hypertonic salt solution, boric acid solution, and glucose solution have been considered. Several years ago the rather strong impression was gained that normal saline solution saturated with boric acid had an excellent effect in promoting the health of granulation tissue. This has been used frequently with satisfaction as a wet dressing in preparing the field for skin graft work.



Such a solution is very slightly hypertonic, has a slight inhibitory effect on bacterial growth, and is certainly non-irritating. Its slight acidity should aid in the disintegration and solution of serous and mucopurulent discharges. Be this as it may, we have found the boric acid-saline solution an excellent fluid, always at hand in the hospital, for use in wound irrigation of the continuous type. At the present time we use equal parts of normal saline and saturated boric acid solution, mixed from the hospital stock.

In the application of continuous irrigation therapy to an open wound cavity as outlined above, certain principles of surgery must be respected and certain precautions observed. Otherwise trouble may be encountered. First, the wound must be draining well from a surgical standpoint so that no positive pressure is being exerted by the products of suppuration from within. Second, the draining wound should be given due time to be walled off by adhesions and the organizing fibrin-blood cell-fibroblast inflammatory defense, from neighboring uninfected areas. This we might roughly estimate at a period of a week to ten days at least after the establishment of the usual surgical drainage. Third, the pressure of the irrigating fluid as applied to the wound must be minimal, or just enough to promote a gentle overflow of the fluid from the wound. Otherwise we might again force fluid through the thin walls of the cavity and disseminate infection into a sterile space. The proper adjustment of the drip apparatus at a point just above the level of the wound and the regulation of the outflow by means of gentle aspiration take this factor into account. Fourth, the fluid used should at least be non-toxic when absorbed by passing a large quantity over raw surfaces in a short length of time. While I am by no means certain that an antiseptic solution applied in this manner with the idea of disinfecting the wound is always contraindicated, so far this technique has been used only with the intention of mechanically cleansing the wound. Fifth, we must raise the question as to whether continuous irrigation should be applied to a patient with a septic temperature, who is absorbing toxic material from his abscess cavity. This, to be sure, is a mooted point and is a definite departure from the principles of wound treatment by the Carrel-Dehelly or other lavage methods, where the application

of an antiseptic has met with such pronounced success. For the present a conservative attitude has been adopted. Continuous irrigation has not been used by us in the presence of a marked septic temperature curve. Likewise, the occurrence of a sharp rise in temperature or a chill (which thus far we have not noted) would be a theoretical indication for immediately disconnecting the apparatus.

I feel that in continuous irrigation we find a good substitute for drainage by gravity. This is not always necessary for prompt wound healing but as every surgeon knows, gravity drainage is a thing to be desired when it can be practically applied. In dealing with an abdominal abscess, with pleural suppuration, with sinuses from infected bone, and the like, gravity drainage cannot always be employed. Con-

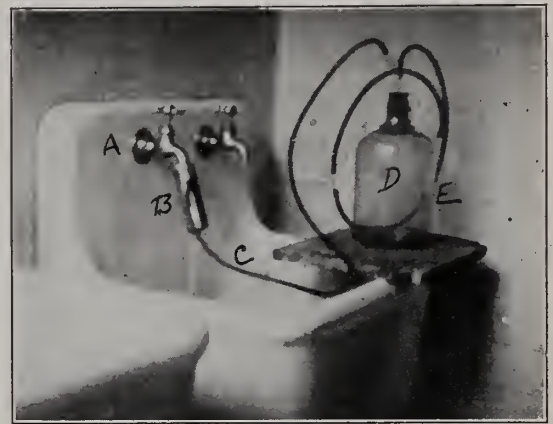


Fig. 5.—Gray's suction pump shown attached to water faucet. The aspiration bottle (D) is connected with the outflow tube by means of the rubber tube and adapter (E).

tinuous irrigation with a non-toxic fluid which is constantly replenished should do much to aid in every washing away the necrotic products of suppuration in a way that even gravity drainage could not do.

In our experience the response to treatment of infected wounds by the continuous irrigation technique has been uniformly striking. A draining wound which is pouring forth each day a thick purulent discharge, often foul smelling, very quickly undergoes a change which is definitely appreciated by the hospital staff and the patient himself. In a few instances within twenty-four to forty-eight hours the result has been particularly remarkable. The drainage becomes thin and serous, pinkish granulations replace sloughing tissue along the wound margins and within the cavity and

the walls of the cavity noticeably begin to fill in. As this process takes place the size of the irrigating catheters may be lessened. In a few instances we have even used a ureteral catheter for the inlet tube, the outflow catheter then being a small urethral catheter of a size 9 to 10 F. Figure 2 shows such an arrangement as applied.

During the past four years we have applied continuous irrigation to infected wounds more or less as outlined above, in sixteen cases. As to type they have included the following:

Six abdominal abscesses, one of indeterminate cause, and four of appendiceal origin. The secondary abscess developing in the patient mentioned above, who had had a left salpingo-oophorectomy, also belongs in this group.

One lumbar abscess cavity which developed and persisted for several weeks after nephrectomy for acute pyonephrosis responded promptly to this mode of treatment.

Six secondary infections in the abdominal wall with abscess formation in the fatty and suprafascial tissues were thus treated. These followed such operations as appendectomy, cholecystectomy, gastroenterostomy (2 cases), repair of incisional hernia, and suprapubic prostatectomy (marked infection in abdominal wall following a second stage prostatectomy). The results in each instance were quickly appreciated and we feel that the period of hospitalization was materially shortened for each patient thus treated.

*One case of extensive carbuncle involving the suboccipital region of the neck* may be mentioned. Ten days after radical operation with knife and cautery the bed of the wound seemed indolent and presented sloughing necrotic tissue which we felt would require a long period of time for healing. Continuous irrigation was applied by burying the catheters under the dressings and allowing the back of the patient's head to rest near the edge of the bed on a Kelly pad. The irrigation was stopped at night. Within a few days the slough had separated and a pink bed of granulation tissue presented itself. The patient was allowed to go home for about two weeks when he returned for Thiersch grafting which was satisfactorily carried out.

Two cases of persistent drainage from bone cavities following the incision and drainage of

acute osteomyelitis have been quickly and rather strikingly cleared up within a week.

Detailed case reports are often burdensome and are not always necessary to illustrate ones point. However, I shall give the high points of three cases which are typical of the series mentioned above.

V. O.—Aet. 14, F. Roanoke Hospital, No. 5633. Admitted with evidences of acute appendiceal abscess. Course rales indicative of acute diffuse bronchitis. Had been sick for five days. Condition so critical that immediate operation was done. One pint of pus evacuated. Necrotic appendix removed and base ligated without inversion. Insertion of numerous cigarette drains. Wound closed with chromic catgut and through and through silkworm gut sutures. Patient promptly developed acute bronchopneumonia and hovered between life and death for ten days. Then began to rally. Intensity of wound infection pronounced, with sloughing of tissue and cutting through sutures. Wound re-sutured (local anesthesia), with through and through quilled sutures of silkworm gut. Application of hot potassium permanganate dressings for five days. Temperature under 100 degrees. Continuous irrigation applied seventeen days after operation. Remarkable improvement in wound in forty-eight hours. Drainage less abundant, very thin, and had lost foul odor. Edges of wound began to show some evidence of healthy granulation tissue. After five days, ureteral catheter had to be used for inlet tube. Twenty-four hours later or six days after application, irrigation was discontinued. Small sinus which required about ten days for complete healing persisted. Patient then discharged. No evidence of hernia after eighteen months.

Mrs. A. A.—Aet. 25, F. Roanoke Hospital, No. 7547. Admitted with acute appendicitis of thirty hours' duration. Appendix ruptured with acute diffuse peritonitis. At operation removal of necrotic appendix, stump ligated and not inverted. Large quantity of seropurulent fluid aspirated from abdominal cavity. Culture showed mixed infection of colon bacilli, streptococci, and staphylococci. Numerous cigarette drains in pelvis, in lateral cecal fossa, and in right upper abdominal fossa. Closure of peritoneum around drains with interrupted chromic catgut, through and through silkworm gut sutures being used for the muscles, fascia and skin. The patient developed acute nephritis with oliguria, blood casts, and red blood cells in the urine. Stimulation of diuresis by usual methods was difficult and blood urea mounted steadily until it was 428 mg. per cmm. on seventeenth day. Had been running temperature from 99 degrees to 101 degrees during this time. After seventeenth day diuresis in greater volume was obtained and patient began to show signs of improvement so far as nephritis was concerned.

Shortly after operation the drainage took on a putrescent character. No definite fecal drainage, however, was ever noted. The wound poured forth an abundance of brownish foul pus each day. Hot dressings, frequent change of drains, and interval irrigations with hot potassium permanganate solution were carried out after a few days. Because of our efforts to treat the septic nephritis and the character of the patient's temperature curve we did not establish continuous irrigation until the end of the fourth week. Even at this time shreds of sloughing tissue were being removed from the wound



and the character of the drainage had not changed appreciably.

Within two or three days after the institution of continuous irrigation the drainage from the wound had become thin and seropurulent and had lost its almost fecal odor. Likewise the amount of sloughing tissue which we could remove easily from the wound had diminished to a marked degree. Within one week the drainage had become serous and the cavity of the wound had filled in appreciably by the process of granulation. Continuous irrigation was kept up for six days. Then it was stopped, being again replaced by interval irrigation with boric acid saline solution and the application of wet dressings. One week later the patient was ready for discharge so far as her wound was concerned. She was kept in the hospital however, for a week longer for treatment of the subsiding nephritis.

C. T.—Aet. 16. Roanoke Hospital, No. 6865. Admitted December 27, 1928, having been shot with a pistol bullet which lodged in the medullary cavity of the left femur. This was removed within a few hours through a lateral window in the shaft of the bone. A vaseline pack was placed. The wound became infected and coincidentally the patient developed an influenzal infection which persisted for about one week. Drainage from the bone cavity continued for several weeks after the temperature had become normal. The wound was found each day to be the site of a considerable amount of purulent drainage. Continuous irrigation was applied February 1, 1929, or about five weeks after operation. Within three days the drainage had become serous and the cavity began to show prompt signs of filling in by granulation tissue. The patient was discharged from the hospital with the wound entirely healed on February 12th. Both Dr. Wescott, the orthopedic consultant, and myself feel that he was saved at least two months' further stay in the hospital. Incidentally, this patient has been seen frequently during the past seven months and there has been no sign of recurrence of his bone infection.

In conclusion, it may be said that this method of handling chronic draining abscess cavities, while still in process of development in our hands, has proven its worth. It is not offered as a substitute or improvement on the Carrel-Dakin technique nor is its purpose exactly the same. I do believe that it will help to clean up rather rapidly a number of chronic draining wounds which seem to us, as we see them on our daily rounds, never to show signs of healing or of ceasing to pour forth their daily output of pus for months and months. Without being extravagant in any claims, I have described the technique as it has been applied and, from the experience we have had with the method, we cannot but approach its usage in the cases to come with a certain degree of enthusiasm. Furthermore I may say that while I have had no experience with the application of continuous irrigation in cases of duodenal or persistent biliary fistula, in certain selected cases of this type it might find a field

of usefulness both in promoting healing and in preventing the skin necrosis with which these conditions are usually associated.

#### DISCUSSION.

DR. W. H. GOODWIN, University: Those of us who have had to care for these suppurating lesions certainly ought to appreciate the helpful suggestions given to us by Dr. Keyser in his paper. Continuous irrigation will certainly tend to minimize the duration of suppuration, shorten the duration of disability, and reduce the danger of spreading infection.

Experiences in the World War gave us several excellent convictions. The use of typhoid inoculation kept the incidence of typhoid fever very low, and we were more than ever convinced of the value of tetanus antitoxin. I did not see a single case of tetanus in Base Hospital 41. We got from the World War the Thomas splint, the use of which has persisted in civil life. We used the Carrel-Dakin method of treating these wounds in military hospitals with a high degree of success, but in civil life we seem to have gotten away from the use of hypochlorite of soda solutions, which we know to be the Dakin solution. I wonder why? It seems to me that we are not willing to go to the trouble to carry out the proper technic. It is necessary that the solution be made up by a chemist who knows how to do it, as otherwise the solution is irritating and does more harm than good. Dr. Keyser uses the potassium permanganate solution instead of the Dakin solution. It is a good germicide, and it seems the chemical effect is good; it is cleansing. We have seen some of these cases of infected wounds that keep draining month after month, and, if we can do something to clear up these lesions by draining and irrigating, I think we should try. Of course, counter-drainage is very, very necessary, but in some parts of the body it is difficult to get counter-drainage. As Dr. Keyser mentioned, where we have an abdominal lesion, and counter-drainage cannot be secured, continuous irrigation as applied by him is a good suggestion. The procedure Dr. Keyser advocates is somewhat complicated, but if we use it with exactness and do not keep the dressing drenched with solution all the time, but use this rubber tubing, I think we shall find it a valuable procedure.

DR. KEYSER, closing the discussion: There is one point I should have brought out more clearly. The illustration and graphic markings make the apparatus used appear more complicated, perhaps, than it really is. The set-up consists of a sterile Murphy-drip apparatus, which is attached to a plain catheter inserted into the wound. Any form of aspiration apparatus can be attached to the out-flow catheter. These pieces of apparatus are available and can be set up quickly in any hospital. The apparatus is simple, easily gotten together and applied, and it really works.

#### FOOD ALLERGY IN THE SPECIALTIES AND IN GENERAL MEDICINE.\*

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Clinical allergy has been described as the youngest of the medical specialties. This designation is true in part only. While it is one of the most recent concepts of clinical

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medicine, we cannot yet accurately evaluate its importance. There are enthusiasts who attempt to see all things medical as expressions of allergy, and they are balanced by those who deny to allergy any place of importance. The truth is, of course, somewhere between these extremes and its exact position, time alone will determine. The inaccuracy in the above designation of allergy is its description as a specialty. I would emphasize that allergy cannot be divorced from general medicine, and hope to show you how it must often be included in a consideration of the aspects of diverse medical conditions.

While allergic methods are often unsuccessful, even in those diseases which are now by common consent called allergic, yet success is achieved in a sufficiently large proportion to justify giving allergic methods a recognized place in therapy. Therapeutic success varies with the type of allergy and, curiously, with geographic location. Pollen asthma and hay-fever properly treated are usually satisfactorily relieved. I say properly treated, because unless one has had an unusual experience in allergic therapy one's treatment is rarely complete.

One of the most pernicious influences toward unsuccessful pollen therapy is the popular fifteen dose treatment set. There is no justification whatever in assuming that by the end of the fifteenth dose complete desensitization will have been accomplished. Some patients require fifteen, some twenty or even more. But the doctor and the patient having completed the fifteen doses, settle back in the assurance that desensitization has been completed. If the subsequent results are unsatisfactory, proper pollen therapy receives, unjustifiably, "a black eye."

But when pollen therapy is properly administered the results are good. In the central states, where there is a high pollen prevalence and the vast majority of the asthmatic and rhinitis cases are pollen cases, allergists report from eighty to ninety per cent satisfactory results from treatment. Along the Atlantic Seaboard and especially in this section, where pollen concentration is relatively low, the obscure sensitizations to less usual inhalants or alimentary allergens form a much higher proportion and the percentage of good therapeutic results stands around sixty. There are probably just as many of these obscure cases in the Middle West but

there are in addition so very many more pollen cases that these latter boost the figures for good results.

In those diseases of more obscure etiology but in which allergy appears to be playing a part, the definite successes are still lower. This is illustrated in my own figures of fifty per cent in the general run of dermatitis including eczema, thirty-seven per cent in migraine, and thirty-three per cent in pruritus ani.

These figures for success in the more obscure allergic manifestations may appear low, but we should realize that they are diseases in which other methods have failed. My eczemas have almost invariably been through the hands of at least one, sometimes several, dermatologists, and, as a consequence, those that I study from an allergic standpoint are those that have resisted other measures. Fifty per cent success among these is therefore a real achievement. The migraines likewise have usually been down the line of therapy, and if over one-third are relieved they represent thirty-seven out of every hundred persons who have already virtually given up and resigned themselves to invalidism.

I give you these figures on successful allergic therapy, with their wide range from thirty-three to ninety per cent, so that you may be informed as to actual results obtained by allergists, unbiased by hyperenthusiasm.

In this communication I will not discuss the more usual and obvious forms of clinical allergy which are usually easily diagnosed, in which the chief problem is the finding of the allergenic cause. This at once eliminates most of the inhalant allergies and leads us to the alimentary allergies, especially food sensitization. Even in this group I will not discuss the obvious allergies often due to food, such as asthma, vasomotor rhinitis, urticaria, etc., but the more obscure conditions which are usually not at all related to allergy but in which allergy occasionally plays a part.

If you will bear in mind that the four dominant characteristics of the allergic reaction are smooth muscle spasm, serous and catarrhal exudation and local eosinophilia; if you will recall that smooth muscle is widely distributed through the body in organs and tissues, such as the bronchi, the blood vessels, the gastrointestinal tract, the urinary tract, the uterus and the eyes; and if you will recall that anaphylaxis or allergy represents an altered re-



activity of the body tissues as a whole; if you will bear in mind that it has been demonstrated that protein is often absorbed undigested and appears in the blood, and if you will accept the statement that ten per cent of the entire population are frankly allergic while possibly as high as fifty per cent show at times evanescent or obscure allergic manifestations—you will realize how protean may be the manifestations of this disease.

As Richet<sup>1</sup> has said, "It is probable that anaphylaxis plays a part each day in modifying our constantly unstable state of equilibrium, and in developing in us a humoral personality, just as our memory and antecedent experiences and sensations create for us a psychic personality."

For purposes of classification I shall describe the manifestations of food allergy as they appear in their different medical specialties.

*Allergy in Surgery.*—I have seen several cases of food allergy with abdominal manifestations, which have previously been operated upon for appendicitis either acute or chronic, in which the symptoms were not subsequently relieved until after the finding of the food allergen. McIntosh,<sup>2</sup> at the Portland meeting of the American Medical Association, presented a series of cases in which the appendix had been removed without benefit and in which tissue examination showed a local accumulation of Charcot-Leyden crystals and eosinophils, which he interpreted as indicative of local allergy. Occasionally food allergy will be responsible for symptoms quite indistinguishable from pyloro-spasm or even peptic ulcer.

*Allergy in Gastro-enterology.*—The abdominal symptoms of food allergy may be either acute or chronic. When acute, manifestations are usually gastric at the beginning; later, colonic. An acute abdominal pain with nausea and possibly vomiting, with the pain localized in either the epigastrium or the hypogastrium, and followed later by diarrhea, with or without mucus, is the classical representation of acute abdominal food allergy. Subacute or chronic abdominal allergy may manifest itself by hyperperistalsis, especially in the colon, and with an increased secretion of mucus in which eosinophils and Charcot-Leyden crystals may be found.

On the other hand, hyperperistalsis and diarrhea do not necessarily occur. I have one

patient who suffers from spastic constipation only when she is eating foods to which she is sensitive. Constipation and general toxemic symptoms are her only allergic manifestations.

Templeton and Bollens<sup>3</sup> have developed a method for testing for sensitization or anaphylaxis, using the nonstriated muscle of the colon. As you know, the classical laboratory method consists in exposing sensitized guinea pig uterus muscle to the suspected allergen. These authors, working with larger animals, insert a small balloon into the colon for the purpose of recording evidence of increased spasticity of this portion of the intestinal tract after injection of an allergen to which the animal is sensitive.

Rowe,<sup>4</sup> who has made an extensive study of food allergy, has classified the gastro-intestinal symptoms of fifty food allergics. Of these, twenty complained of pain and soreness in the epigastrium, four in the right upper quadrant, sixteen in the mid-abdomen, twenty in the lower abdomen, and ten presented the ulcer type of pain. Intermittent cramps were complained of by twenty-four, and fourteen manifested mucous colitis. Twelve had diarrhea and thirty-two were constipated. Other symptoms manifested by these uncomplicated food allergics were cancer sores, coated tongue, foul breath, abdominal distention, belching, sour stomach, pyrosis, epigastric heaviness, nausea and vomiting.

X-ray studies in thirty-two showed normal findings in twenty-three, duodenal stasis in two, and a spastic colon in seven. Gastric analysis was normal in twenty-three cases, showed a subacidity in four, and an achlorhydria in three.

Twelve of the fifty had already been operated upon for their symptoms, the duration of which averaged fourteen years.

In this series Rowe obtained excellent therapeutic results from food avoidance only, of at least one year's duration at the time of his article, in sixty-six per cent. He reports definitely good results in the remaining thirty-four per cent.

Abdominal allergy may by its production of local edema and spasm enhance the manifestations of other organic abdominal pathology. In gall-bladder disease, the patient often remarks that certain definite foods increase the symptoms. Here we are not necessarily dealing with pure allergy. There may be true

gall-bladder disease, with exacerbations due to local allergic reaction. The best non-surgical treatment will include removal of the offending allergens.

*Allergy in Proctology.*—Among Rowe's fifty food allergies, he found four cases of pruritus ani and two of proctitis, relieved by food avoidance.

In cooperation with Dr. E. H. Terrell, of Richmond, I made a study of a series of cases of pruritus ani. These cases were selected by Dr. Terrell, who had made a careful proctologic study and found no local cause other than, in some of the series, a perianal eczema. Thirty-three per cent were relieved by food avoidance, after we had found by skin tests the specific foods to which they were sensitive.

*Allergy in Urology.*—When we consider the widespread distribution of smooth muscle in the urinary tract, we realize the possibility of local allergic manifestations. Duke<sup>5</sup> especially has described symptoms of bladder irritation, without recognizable physical cause, and pain, due presumably to smooth muscle spasm, which may be severe enough even to be called kidney colic, as due to food allergy. I myself have had little success in finding an allergic cause in this type of urologic condition, but it would be well to bear in mind the possibility of allergy in these types of symptomatic urinary disturbances without local pathology.

*Allergy in Gynecology.*—Both Cooke<sup>6</sup> and Duke<sup>5</sup> report menstrual disturbances associated with food allergy. This includes not only painful menstruation, presumably due to smooth muscle spasm, but also menstrual irregularity. I have had little occasion to follow this in my own work. I recall one case of a girl whose only allergic manifestation was headaches, coming on only at time of catamenia. She was egg sensitive and the headaches were entirely relieved on avoidance.

*Allergy in Rhinology and Otolaryngology.*—Nasal manifestations of allergy are common and are not due entirely to inhalant allergens, being not infrequently associated with sensitization to foods. Sneezing is probably the most frequent symptom, and is usually accompanied by a more or less profuse watery secretion. It is not infrequent to obtain a history of violent sneezing immediately after arising in the morning. While this is usually associated with inhalant sensitization, especially to dust or feathers, there is often an associated food allergy which serves to increase the in-

tensity of the reaction. I doubt whether anyone but an allergic can successfully sneeze ten or fifteen times in rapid succession. So characteristic is this that when you hear a patient complaining that when he starts sneezing he can't stop until he has sneezed half a dozen or more times, look for allergy.

Seasonal vasomotor rhinitis or hayfever is usually easily recognized, but chronic nasal allergy without seasonal variation is often mistakenly treated as a local disease. The allergist sees many patients who have had intranasal surgery without benefit and who are promptly relieved after the discovery and removal of the offending allergen. Chronic edema of the nasal mucosa without definite clear-cut local etiologic factors should raise the question of allergy. Polyps frequently follow this chronic edema, and these also should cause one to bear in mind the possibility of protein sensitization.

Sometimes the only local manifestation is a sense of pressure or headache due to blockage of the sinuses from edema. Only recently a man came to my office complaining only of a sense of pressure at the base of the nose. The symptom was so indefinite and unassociated with any other personal or family history of allergy that I advised against skin testing. However, he said he had tried everything else and asked me to go ahead anyhow, and to my surprise, I found violently positive reactions to the pea-bean group, peanut, strawberry and a few others. In the course of conversation it then developed that he had had several years ago attacks of angioneurotic edema following the eating of strawberries. He had forgotten this on the preliminary questioning. Incidentally, he eats peanuts practically daily.

Itching of the roof of the mouth is characteristically an allergic manifestation, although it does occur also in acute coryza. Angioneurotic edema, often allergic, may involve the lips, tongue, nose, pharynx, larynx. I have one man who develops a swelling of the upper lip only after drinking a certain kind of whiskey. A low-grade chronic allergic edema of the larynx and trachea may be responsible for hoarseness or a chronic cough without any asthma or vasomotor rhinitis. Here, as in all other allergic manifestations, a positive past personal history of allergic outbreak or a positive family history is very



helpful in arousing suspicion of allergic etiology.

Chronic allergic rhinitis equally as well as mechanical local obstruction predisposes to sinus infection and often poor results following local treatment of a true sinusitis are due to the fact that a concomitant allergy has been over-looked. Many of the rhinologists have come to realize this and in the event their sinus cases do not clear up satisfactorily following local treatment, they send them on for allergic studies—to be used as an aid to the local treatment.

Even the ears are not free from the stigma of allergy. I have several cases of eczema of the external ear and auditory canal associated with food sensitization, and often also with feather sensitization. The patient sleeping on a feather pillow, with the ear warm and moist and applied directly to the pillow, establishes a beautiful direct contact with feather protein. In this type of case, it is best not only to change to some other type of pillow but also at the same time avoid whatever food to which the patient reacts.

*Allergy in Pulmonary Disease.*—The chronic allergic cough has been mentioned. True bronchial asthma is not always or necessarily inhalant allergy. It may accompany sensitization to food. Conversely, food allergy may manifest itself in the respiratory tract in other forms than as a typical bronchial asthma. I have seen a number of cases of what any of us would agree in calling ordinary chronic bronchitis without in any way presenting the picture of asthma, yet which were definitely food allergic in origin. These are relieved by food avoidance, the symptoms returning on subsequent exposure to the offending allergen.

Few of us nowadays still believe the old teaching that asthma and tuberculosis do not occur together. I have seen tuberculosis diagnosed as asthma and asthma diagnosed as tuberculosis. I have seen several patients with both tuberculosis and asthma, and at least one with tuberculosis and an allergic bronchitis. Even in the latter case where there are no typical asthmatic paroxysms it stands to reason that the patient will recover more satisfactorily from his tuberculous infection if the food or other allergen responsible for his bronchitic symptoms is avoided. I have seen a case of quiescent tuberculosis activated by an attack of asthma.

*Allergy in Cardiology.*—Some claim that extra-systoles and attacks of tachycardia may be associated with allergy. I personally have had no such experience, although I have searched for allergy a few times in this type of case. The nature of the cardiac muscle, however, makes this not altogether improbable.

I have seen and reported one tremendously interesting case, that of a decompensated hypertensive cardiac in whom contact with specific allergens to which the patient was sensitive precipitated repeatedly attacks of acute pulmonary edema. The overload of the allergic reaction appeared to be just enough to throw out the cardiac regulatory mechanism. These acute attacks were definitely not bronchial asthmatic, but typically cardiac asthma. These two clinical manifestations are altogether different and need not be confused. Furthermore, this patient had never had bronchial asthma.

*Neuropsychiatric Manifestations.*—Migraine is frequently an allergic manifestation, although in the majority no allergic etiology is found.

I have two cases of typical trifacial neuralgia associated with wheat sensitization who were relieved by wheat avoidance. These are the only two of a large number of trigeminal neuralgias which I have studied. Here, once again, I would emphasize that allergy is far from being the only one or even the most important of the etiologic factors in most of the conditions which I have been enumerating. However, in those who do not respond to other therapeutic measures, bear allergy in mind.

Asthenia is often a most pronounced symptom, sometimes practically the only one. I have among my patients a woman who, when she eats wheat is perpetually tired. Her exhaustion is at times so pronounced that she describes it as painful. On wheat avoidance she becomes full of energy.

Chronic food allergy may quite change the personality of an individual. One of the children in my series has an unusually nice disposition. Let him eat one of the foods to which he is sensitive over a period of several days, and he becomes an irritable, whiny, bad tempered lad.

Shannon<sup>7</sup> has made a special study of the psychic reaction in allergic children and has described rather startling changes in children's temperament and intelligence as measured by their capacity to do their school work follow-

ing protein avoidance. I have tested out several epileptics, usually without success, but in two children I have been able to relieve the epilepsy by food avoidance. One was wheat sensitive, and the other sensitive to chocolate. Wallis and Nicol<sup>8</sup> have made a special study of allergy in epilepsy and have been able to relieve 38 per cent of their cases by dietary measures only, and have, as a control, produced attacks by having these patients eat the foods to which they are sensitive.

Duke<sup>5</sup> has described cases presenting Menière's syndrome due to food allergy. I have studied three or four such cases with this in mind, but was not successful in demonstrating an allergic basis.

*Dermatologic Manifestations.* — Urticaria, eczema and angioneurotic edema have been discussed. Alexander and Eyermann<sup>9</sup> have reported cases of purpura, definitely allergic and relieved on protein avoidance.

Erythema multiforme sometimes follows food sensitization. Anthony<sup>10</sup> explains the frequency of this disease in the spring and autumn as due to alterations in food and clothing. Engman<sup>10</sup> describes the case of a girl who developed erythema multiforme every time she ate pork chops; Galloway,<sup>10</sup> a case due to the eating of blackberries and nuts; and Fordyce,<sup>10</sup> a case of iris erythema after the eating of lobster.

Lowe<sup>10</sup> states that definite foods, such as eggs, have occasionally produced attacks of dermatitis herpetiformis.

*Allergy in Pediatrics.*—All that has been said thus far concerning allergy in general medicine as represented in its special branches applies equally well in pediatrics. Indeed, as far as the future welfare of the child is concerned, the problem is much more vital to the pediatrician than to men whose primary interest is disease among adults. The child is born with the allergic predisposition, and the sooner an actual sensitization is discovered the better it will be for the future health of that person.

#### CONCLUSIONS.

This rather sketchy communication is presented in the hope of showing how interrelated allergy may be with other disease processes, and of urging those in other fields of medicine to bear in mind the possibility of a concurrent allergy in pathologic manifestations such as those which I have enumerated. This possibil-

ity is to be considered especially in the presence of a positive past or family history of any of the more usual allergies. The facilities for testing for allergy are available to all physicians and the technic is simple, although the interpretation and therapeutics are sometimes highly technical. There is no reason why every physician should not acquaint himself with the proper use of the diagnostic allergy test outfits and use them in his work. With twenty or thirty test substances, he will be able to recognize and eliminate possibly fifty per cent or more of allergic factors.

But I would emphasize at the same time that negative findings after ordinary skin testing by no means rules out an actual existent allergy. This is even true in the frankly allergic diseases, such as asthma, hayfever and vasomotor rhinitis. But if the attending physician can relieve fifty per cent of his allergic cases without requiring further consultation, he will have established a distinct advance. The remainder, in which there is a reasonable assumption of allergy, may require more technical study.

I have said that allergy cannot be divorced from general medicine. This is most certainly true, and I believe that this paper has emphasized that fact. On the other hand, many of the technical procedures, especially in the more obscure cases, such as intradermal testing, opthamo reaction, dust extraction, passive transfer, secretion filtrate and the like, require a technical and interpretive experience that can only be gained through an unusually intensive study of the problem under consideration.

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*Medical Arts Building.*

# A TALK TO COUNTRY DOCTORS.\*

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To the country doctor and the general practitioner we look for the preservation of the rapidly fading picture of that high type of professional figure, the physician who acts as adviser, counselor and friend of the family, a picture which the advent of the specialists is threatening to efface. This three-fold capacity, however, increase the responsibilities of the doctor and demands perhaps rarer acumen, better judgment and a wider outlook on the diagnosis and treatment of disease. By this I do not mean easier recognition of rare disorders but of the more or less common diseases, which, in spite of, or perhaps because of their very frequency, are liable to escape attention and the proper evaluation of their importance.

With this in mind I have thought it worth while to dwell on the significance of some of the chronic digestive disorders referable to the stomach and the upper intestinal tract, and two common acute conditions, intestinal obstruction and strangulated hernia.

I take it that the most frequent complaints which come to the doctor's ears are related to the process of digestion, since the stomach may play the role of announcer of as varied a series of events as the now celebrated MacNamee is called upon to give us over the radio. What to do when a patient complains that "everything he eats goes to his stomach" (which, of course, it would be a bad thing if it did not), and how to interpret that complaint is a question which arises perhaps several times a day in every doctor's office. The acute observer and the man of experience begins to take his mental notes, before the patient utters a word, from his very manner of entering the consulting room. Would that I had the facile pen that can adequately describe the different types of so-called dyspeptics! The resulting word pictures, if embodied in a booklet, would, I am sure, rapidly enter the ranks of the best sellers, the pecuniary rewards of which would far outrank my present professional income. Seriously speaking, how-

ever, I believe that the general practitioner should cultivate the habit of observing the general behavior of his patients as they enter his room. He can learn much from the walk, the facial expression, the manner of beginning the more or less woeful recital of his troubles, etc.

Thus the history-taking begins. Its development and proper evaluation belong to the fine arts in medicine. You all realize this, I know, and I am with you likewise in realizing how much depends on the type of patient. But here is where the art comes into play. However, important as this aspect of medicine is, it is not my purpose to talk on the psychology of patient and practitioner. As I have said, I want to try to present to you certain facts in digestive disorders, the more common of which are caused by a chronically diseased appendix, followed in the order of frequency by chronic gall-bladder disease, peptic ulcer and chronic pancreatitis.

It is only necessary to recall the structure of the appendix, composed as it is of much lymphoid tissue, to see why it has justly been compared to the tonsils and to illustrate the susceptibility of lymphoid structures to infection. As infection of the tonsils is the most common cause of sore throat, so infection of the appendix, the abdominal tonsil, is the most common cause of the sore belly. I know that chronic appendicitis has been denied a place as a clinical entity, but this denial does not come from abdominal surgeons of large experience who make many autopsies *in vivo*. We have but to recall the physiology of the appendix and the cecum to see the role pathological physiology plays in causing indigestion or dyspepsia. (See my article on "Chronic Appendicitis," *American Jour. Med. Sciences*, June, 1929, No. 6, vol. clxxvii, p. 749). The appendix, therefore, is the first to be ruled out in the study of the dyspeptic patient, by careful inquiry and careful physical examination, and bearing in mind the many other causes of indigestion, such as movable kidney, visceroptosis, movable tender cecum, ureteral inflammation, stone or stricture, certain tubercular inflammations, or carcinoma of the cecum or peritoneum, tubercular mesenteric glandular enlargement, retroperitoneal lymphangitis, chronic psoriasis or psoas abscess, periostitis of the hollow of the ilium, iliac abscess, and, in the female, chronic tubal, ovarian, or tubo-

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ovarian disease, which are all diagnostic possibilities and pitfalls if we are not alert. This is a panoramic view of the situation, every unit of which calls for recognition. Any or all of these conditions may give upper as well as lower abdominal discomfort and make one think the stomach is responsible. To attempt a differentiation of the symptomatology and physical findings of these various conditions would take me too far afield; therefore, I simply mention them so that you may be better able to meet the perplexities of abdominal diagnosis. In order to be able to rule out the appendix as the cause of the trouble, one must be familiar with its different positions so that the findings of palpation will be more certain. With this knowledge, the different points to which pain is referred are better understood. The most common positions of the appendix, as I have frequently pointed out, are lateral to and behind the cecum and colon, in the pelvis, beneath the terminal ileum and mesentery and pointing downward and backward to the left, above the terminal ileum and mesentery and pointing upward and to the left mesial to the cecum and the colon, and anterior to the cecum and the colon.

What I have said of the appendix as a causative factor of indigestion is equally true of the liver and its appendages, especially the gall-bladder. The liver is the bio-chemical laboratory of the body, its chief metabolic center, the great filterer of filth, the center of internal respiration, the abdominal brain, the storehouse for glycogen, and is made up of two kinds of cells, the hepatic and the stellate. It is interesting to note that each hepatic cell, which possibly has more physiological activities than any other cell in the body, is connected by a nerve fiber to the solar plexus, making this region most important from the standpoint of innervation of the abdominal viscera. The stellate or Kupffer's cells are endothelial and belong to the reticulo-endothelial system, acting chiefly as scavengers in removing bacteria and other organisms from the blood stream.

The most common lesion of the upper abdomen—cholecystitis—oftentimes presents vomiting, epigastric pain, hyperchlorhydria, pylorospasm, and atony of the stomach. As a rule, however, disease of the gall-bladder presents certain inaugural symptoms, such as discomfort after meals, especially after rich,

fatty foods, gaseous distention and eructations, chilliness after meals, usually after the evening meal, and constipation. The patient likewise is apt to be of a nervous temperament, so that the diagnosis is apt to be the convenient and comprehensive one of nervous indigestion. It is all right to treat these patients' nerves, but remember that the best way to do so is to start with the biliary passages. Here, again, there is the chance for preventive work that will forestall the advance of cholecystitis and the possibility of stone formation with its more or less disastrous sequelae. Fully developed disease of the gall-bladder, especially in the presence of gall-stones, is not difficult to recognize. The syndrome of colicky pain in the hypochondrium, referred to the back and to the right shoulder, relieved by vomiting, either spontaneous or induced, and often requiring morphine for relief, is too familiar to require consideration. The objective symptoms, however, may demand some attention since they are apt to be relegated to the laboratory for demonstration. The history, together with careful palpation, is an important part of the study and should never be omitted. I have always urged this, and I particularly urge it at this moment, because laboratory facilities are not always available in outlying rural districts. I regard palpation by sensitive, trained fingers as the most valuable asset of every doctor. If this sensitiveness is not congenital, it fortunately can be acquired by carefully repeated practice. In disease of the gall-bladder, palpation over the affected area will detect rigidity, tenderness and perhaps the presence of a mass. This mass can usually be felt as the patient takes a deep breath with the mouth open; if the mass seems to move upward on deep inspiration, it can be better made out by having the patient hold his breath for a few seconds. To me, the positive results of this manoeuvre indicate very probable pathology in the region of the gall-bladder. Doubt may arise, especially if the appendix occupies a high position. In such instances cholecystography may be helpful in arriving at a decision, provided the man behind the apparatus and in front of the finished picture is both a good mechanic and a good critic.

Sending these patients to the noted European springs, and prolonged medical treatment, I believe, are responsible for much morbidity, such as hepatitis, cholangitis, pan-



creatitis, etc. I am led to this conclusion by my excursions into the pathological fields of the upper abdomen which disclose hidden secrets.

What I have said of an infected gall-bladder is equally and to a greater degree true of infection of the liver, since disturbed physiology of the liver too often makes for a disastrous future for the patient. If cholecystitis is the result of primary infection of the liver, the earlier it receives attention, the better for the liver; and if the gall-bladder is primarily infected, early attention to it likewise saves the liver.

As to peptic ulcer, its diagnosis would be easy if every case presented the typical syndrome of periodic attacks of epigastric distress or burning pain two to three hours after meals, relieved by alkalis, and almost complete well being between such attacks. But we all know that the sequence of events often varies and may be more or less misleading. A history of indigestion may often be much more suggestive of cholecystitis or chronic appendicitis than of ulcer, and operation may reveal ulcer only. X-ray studies do not always show positive findings and a negative report does not always carry weight. Much depends on the roentgenologist, and there are certain ulcers that are difficult to demonstrate even at operation. Duodenal ulcer occurs as one of two types: the indurated calloused ulcer, visible and palpable and readily demonstrated at operation, and the non-indurated and non-calloused ulcer that can neither be seen nor felt from the peritoneal surface, and, even with the bowel opened, if at all visible, can be seen only as a slight erosion of the mucosa. This type does not show the typical niche of a calloused ulcer; in fact, it is doubtful whether in the hands of the average roentgenologist it will be demonstrable at all. And still the clinical symptoms are those of ulcer.

What about gastric analysis? Again we have wide variants with which to deal. The presence of occult blood in the stools is, of course, significant, but its absence is not decisive evidence against ulcer. Acidity varies greatly in different ulcer cases, although a high acidity is more often found in the typical ulcer than not. The fact, however, that acidity is also found in cases of chronic disease of the gall-bladder and of the chronic appendix, although not in the same proportion, takes away some-

thing of its diagnostic value. While it is not always convenient for the country doctor to have these tests performed, he should have them done whenever possible, for these studies, if made by him who sees the patient first, are valuable both to the doctor and to the consultant. Keen observation and methodical recording and reporting of early symptoms contain the greatest promise for furthering that preventive work which is the aim of our profession; and it is the general practitioner who has the opportunity to make this valuable contribution to medicine and, incidentally, of course, to surgery.

How to diagnose and treat these duodenal ulcer patients is one of the very trying questions that confronts the practitioner. One of the difficulties in diagnosis in the absence of a definite history, and even in its presence, is due to the similarity between the symptoms of ulcer, gall-bladder and chronic appendicitis, especially if there is jaundice. The symptoms of ulcer, however, if of long standing, are more definite. There are intervals of betterment with frequent recurrences. But the kind of food ingested does not play the same role in ulcer as in gall-bladder and in chronic appendicitis. X-ray study in the absence of a definite niche or crater is not particularly satisfactory. The deformity of the duodenum, due to pericholecystic adhesions and the adhesions resulting from a high-lying appendix, makes differential X-ray diagnosis an impossibility in the absence of more concrete evidence. It may be difficult for some of you to understand the symptoms of jaundice occurring in this connection. This is, however, made easier when we recall that the lymphatics of the gall-bladder are in communication with those of the liver and of the duodenum and that by a reversed lymph current infection can be carried into the liver and, as a consequence, cause cholangitis and jaundice.

The physical examination in duodenal ulcer is of little if any help except in the large calloused ulcer with much peri-ulcerous exudate, when deep pressure over the upper part of the rectus muscle may cause tenderness. The most serious type of duodenal ulcer from the standpoint of risk to the life of the patient is the bleeding ulcer. I know from experience that patients do die from hemorrhage. I know also that text-books teach that this rarely oc-

curs, but I wonder if the diagnosis of duodenal ulcer in these instances was correct.

The two conditions in the absence of an ulcer history that are difficult to differentiate from bleeding ulcer are bleeding in early Banti's disease and ulcerative perforation of an œsophageal varix. I have experienced this difficulty when the diagnosis was only proven by inspection and touch.

Duodenal ulcer of long standing frequently causes pyloric obstruction which formerly was regarded as always due to gastric ulcer. The revelations of the aseptic scalpel in the study of the pathology of the living have shown that duodenal ulcer is a distinct factor of pyloric obstruction in practically all instances. May not this raise the question as to whether or not it would be better for books on internal medicine to be written at the side of the operating table rather than in the study of the doctor?

In the differential diagnosis of duodenal ulcer, both duodenitis and inflammation of a duodenal diverticulum may also confuse the diagnostic picture.

Another point that interests me, and I am sure will interest you, is the question, do duodenal ulcers ever heal? This looks doubtful in a percentage of cases at least; otherwise, there would not be recurrences, and, in another sense, it is doubtful in that in our laboratory we have yet to find a duodenal ulcer that I have excised where there has been complete healing—in other words, complete epithelialization.

The treatment of ulcer is that usually outlined by the internist—alkalis, diet and so forth. My one comment is that if after a reasonable length of time the patient's condition is not satisfactory to him and he has had one or two recurrences, operation should be resorted to.

A word as to gastric ulcer! As you are probably aware, there was a time when gastric ulcer was considered more common than duodenal. This delusion has been dispelled since Moynihan's classical treatise on duodenal ulcer. This author later on showed also that many supposed gastric ulcers can be traced to that tricky diverticulum at the end of the cecum. The appendix may cause hunger pain, pylorospasm, and sometimes haematemesis. In the clinical differentiation between gastric and duodenal ulcer, it is well to remember the

sequence of events: first, that the post-prandial distress of gastric ulcer appears earlier and that the cycle is food, comfort, pain, comfort; while in duodenal ulcer it is food, comfort, pain. In other words, the pain in gastric ulcer wears away after the comfort obtained by food, while in duodenal ulcer it persists until more food is taken.

In passing, I may say that for the demonstration of ulcer in the stomach the X-ray has "pride of place," and in competent hands is second only to the surgical demonstration of the lesion.

Gastric ulcer stands out as particularly prominent on account of the risk of undergoing cancerous change and therefore calls for earlier and more radical operative measures than does duodenal ulcer. In our experience in the Lankenau clinic, cancer is engrafted upon gastric ulcer in thirty-five per cent of our cases.

Now, as for chronic pancreatitis, the latter is so often associated with disease of surrounding organs that it is difficult to separate the symptoms due to the accompanying disease and those due to pancreatitis. There are no pathognomonic symptoms of chronic pancreatitis. Of course, disease of the bile-ducts, particularly the common duct, suggests the probable presence of pancreatic disease, although the symptoms referable to each condition cannot be differentiated.

In diagnosing pancreatitis, particular attention should be paid to a history of previous gastro-intestinal trouble or habits of eating and drinking, which usually are associated with cholelithiasis. If disease of the bile-ducts and gall-bladder has preceded the pancreatic inflammation, the early history presents the symptoms of that disorder, with perhaps frank attacks of biliary colic.

The symptoms usually associated with chronic pancreatitis are pain, often referred to the back, nausea, vomiting, constipation, icterus, slight fever and loss of weight. These, however, are common to various other upper abdominal diseases and do not of themselves, even when all are present, constitute a characteristic symptom-complex. The pain in chronic pancreatitis has no definite relation to eating, drinking, or any particular food—a point of possible value in the differential diagnosis from gall-stone disease, gastric or duodenal ulcer. The pain is not constant



in character, position or radiation, nor distinctive enough in any way to differentiate it from the pain of other abdominal diseases.

In mild cases of chronic pancreatitis where the diagnosis is extremely uncertain, medical treatment is in order, especially if improvement occurs. It is not improbable that many of the so-called "stomach complaints," catarrh, etc., are mild cases of pancreatic lymphangitis that recover. But it is a mistaken policy to delay surgery too long, especially when the diagnosis of the usual underlying biliary complaint is certain, since chronic pancreatitis, when once it has reached the stage of fibrous deposit, cannot be cured, although the further progress of the disease may possibly be arrested by timely operation. Surgical treatment of chronic pancreatitis aims at the removal of the underlying cause, prevention of further involvement of the pancreas, and relief of the pancreatic disease present, by drainage of the common bile duct.

Thus far I have spoken mainly of the more common chronic conditions which come to the ken of the general practitioner. I should like to say a word about two acute conditions often met with: acute intestinal obstruction and its next-door neighbor, strangulated hernia.

It is no exaggeration to say that there are few conditions that call for the quick thought and action demanded by an acute abdominal crisis. Here, again, the general practitioner, especially in the rural districts, has the chance of showing his mettle and gaining his medals.

My reason for selecting acute intestinal obstruction and its allied condition is because of the high mortality of both, especially the former. While I believe that in so serious a condition a comparatively high mortality is to be expected, I feel reasonably sure that this could be materially reduced by prompt diagnosis and prompt surgery. There is every evidence to show that the death rate increases in proportion to the time elapsing between diagnosis and operation; or, as someone has aptly remarked, "The longer a patient lives before operation, the sooner he dies after operation." I say here is the doctor's chance. The early symptoms are the important ones, and the family doctor is the first to see the patient whose life depends on prompt recognition and treatment. Everyone can recognize the late symptoms, which may well be called

the too-late symptoms and which too often mean death.

Acute obstruction occurs in one previously well who is suddenly taken with most severe paroxysmal abdominal pain, followed in a short time by nausea and by vomiting of the gastric contents, and later of the contents of the upper small intestine. Physical examination of the abdomen is most important and reveals exaggerated peristalsis, that is, peristalsis coming in waves and subsiding with the subsidence of the paroxysmal pain. The temperature and the pulse rate are normal. Immediate operation under the above conditions is the only course that is logical and life-saving.

Primary, as distinguished from post-operative, obstruction is most often due to a complication of the disorder to which the male is so peculiarly susceptible—hernia, acute intestinal obstruction's first cousin, which is more easily recognized because it presents a protrusion at one of the hernial orifices; namely, the inguinal canal, the umbilicus, the saphenous opening, the end of the femoral canal. Strangulated hernia is an irreducible hernia, differing from the ordinary irreducible hernia in that the latter causes interference only with the fecal circulation, while in strangulated hernia both the fecal and the blood vessel circulation are obstructed. Ordinary irreducible hernia may not require immediate operation while strangulated hernia positively does. These patients are too often subjected to repeated taxis. This, as I see it, is a most harmful measure. If the hernia does not go back when gently pressed upon, it should be immediately operated. Taxis invariably results in hemorrhage into the wall of the bowel and into its mesentery, and in many instances has been the cause of gangrene, entailing a much more involved operative procedure than would have been required had taxis never been made.

Post-operative obstruction is most often due to adhesions. Here the presence of an abdominal incisional scar should suggest the diagnosis. In either case one may sometimes be misled by the fact that the patient has had one or two bowel movements. This merely means that the bowel below the obstruction has emptied itself. But important as the history is, it is the physical examination—observation, auscultation, and palpation—that is decisive.

As I have already indicated, the usual se-

quence of intestinal obstruction is pain, vomiting, constipation and distention. The pain is intermittent, going and coming with the peristaltic waves as the bowel contents try to get past the obstruction. This is a very valuable sign. In fact, diagnosis can sometimes be made on this one feature. Vomiting is a constant feature. It sets in earlier and is more persistent when the obstruction is high than when it is low down in the intestine. At first the vomitus consists of stomach contents and later of mucus, bile, and, finally, brownish, malodorous fluid, or the stercoraceous regurgitation of the contents of the small bowel. To wait for actual fecal vomiting, as, unfortunately, often is done, is disastrous.

Distention varies with the site of the obstruction, being less marked in high than in low obstruction. On the other hand, toxic signs appear earlier when the obstruction is high than when it is low; this, like fecal vomiting, is an ominous sign.

An important diagnostic item is the typical constipation, or rather obstipation. Purges should, of course, be avoided. Enemas may be given, but if they fail to obtain results, or if a successful enema fails to relieve the pain, etc., we know that the obstruction has not been overcome. But one must not be misled by the fact that small particles of fecal matter and gas are expelled. The former may be remains of fecal material, and the latter may be merely the air that has been carried in with the injection of the enema.

If, fortunately, the diagnosis is made while peristalsis is still active, the prognosis is correspondingly good. The silent or tinkling belly usually is a hopeless sign. The earlier the operation, the less the surgery, and the later the operation, the more the surgery and the nearer the patient is brought to the gates of the hereafter.

A pre-operative measure of value is gastric lavage. This reduces the distention and vomiting, and if, as may happen in rural districts especially, the operation has to be delayed, dehydration can be prevented by hypodermoclysis or enteroclysis. Morphine may be given to alleviate the pain. Intravenous injections of glucose in normal salt solution may be indicated. Research in this important subject has shown the importance of maintaining not only fluid but also chlorids. The latter are given in hypertonic 2-5 per cent solutions.

Wherever possible, spinal anesthesia should be used at operation. What to do at operation will depend on what nature has done before the operation. The only point to which I would draw attention is to cleanse the hernial sac before relieving the constriction. If the latter is not done and the sac contains vicious organisms, the risk of a peritonitis from contamination is a possibility.

The result of the operation will depend on the acumen of the diagnosing physician; team work before the operation; the judgment and skill of the operator; and, finally, on team work after operation, careful nursing, etc.

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### EXTRADURAL HEMORRHAGE.\*

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One of the most serious conditions which may arise in connection with fractures of the skull, or head injury, is an extradural hemorrhage. It is one of the great emergencies of cranial surgery, and should always be thought of whenever a patient is examined for even a slight head injury. It is hoped that this paper may bring out certain points which will enable an early diagnosis and operation in these cases.

As the term, extradural hemorrhage, implies, the hemorrhage occurs on the outside of the dura, or between the dura and bone. It is caused by rupture of one of the branches of the middle meningeal artery, or probably of a venous sinus. It is associated with trauma to the head, and nearly always there is a fracture of the skull present, which causes laceration of a vessel. The clot which forms is usually in the temporal region, grows more or less rapidly and produces compression of the brain. The relative frequency of this condition as the cause of death in fracture of the skull may be obtained from a review of the literature. Vance<sup>1</sup> reported a series of 507 cases of fracture of the skull which came to autopsy, and 61, or about 12 per cent, had an extradural clot which weighed on an average of 122 gms. This was considered to be of sufficient size to produce death. Le Count<sup>2</sup> and Apfelbach, in a series of 504 cases, found 104, or about 20 per cent, with extradural clots large enough to produce death. The frequency then of extradural hemorrhage, as reported in

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these two large series, would appear to be between 12 and 20 per cent.

In a clinical study of 223 cases of fracture of the skull by Carter,<sup>3</sup> there were nine cases of proven extradural hemorrhage. One was discovered at autopsy and the rest were disclosed at operation. Of these, six cases recovered and three died. Moody<sup>4</sup> reported 100 cases of extradural hemorrhage in a series of 908 cases of fracture of the skull, and he states that sixty-three were diagnosed clinically; thirty-seven were operated upon, and twenty-six of these died.

In this present report, there were seventeen cases of proven extradural hemorrhage which came under my observation; sixteen were operated upon, with three deaths, and one was diagnosed clinically but died before operation could be performed. The diagnosis was confirmed at autopsy. The hemorrhage occurred on the right side in five of the cases and on the left in nine. The only satisfactory explanation of this is that all of the hemorrhages caused by baseball injuries occurred on the left side. An attempt was made to determine the relative frequency of a clot in the different locations in the temporal and occipital regions, which may give information as to the source of the bleeding. Seven were found in the posterior temporal, or temporo-occipital, eight in the mid-temporal and three in the anterior temporal region. These findings were in accordance with those of Vance and Le Count, in that the posterior branch of the middle meningeal artery is most frequently responsible for the hemorrhage.

In nearly every case of extradural hemorrhage there is an associated fracture of the skull. The fracture may be linear or comminuted, and it is the sharp edge of the bone which ruptures one of the middle meningeal vessels or a venous sinus. The blood escapes and clots between the dura and bone at the site of the ruptured vessel, and a gradual compression of the brain occurs. Hemorrhage from the large branch of the middle meningeal artery may cause rapid compression of the brain and early death. On the contrary, bleeding from one or several small vessels may produce compression of the brain over a longer period of time, and death may not come for several days. It has been shown by Wegefarth and Weed<sup>5</sup> that the pressure in a large dural sinus is lower than that of the cerebrospinal

fluid in an intact skull. Then it would seem illogical that a hemorrhage could occur from a sinus with sufficient force to strip the dura from the bone and cause compression of the brain. It is a known fact, however, that the pressure in the venous sinuses is increased considerably under certain conditions, such as vomiting, coughing or straining. These symptoms, which are frequently associated with fracture of the skull, may be partly responsible for the hemorrhage when there is a rupture of a sinus.

It was observed in a few cases at operation that the clot was posteriorly located and the bleeding came from the region of the lateral sinus or one of its tributaries. Clots overlying the lateral sinus have been shown at autopsy as undoubtedly due to a rupture of the sinus wall. These posterior clots are not tolerated as well by the patient as those which are placed more anteriorly. This may be due to the fact that the pressure from behind is more directly upon the vital centers.

Sometimes the diagnosis of extradural hemorrhage is suggested by the nature of the injury. It is not unusual to obtain a history in which there was a relatively trivial blow on the head, as from a short fall, causing the patient to strike his head upon the pavement, or a blow on the head caused by a pitched baseball. The skull is sometimes very thin, and a relatively light blow is sufficient to produce a fracture. The age of the patient may play a part in the etiology. The largest number of cases in our series occurred in the third decade. A possible explanation of this is that in the young or aged, the dura is more firmly adherent to the bone. In such a case, if the dura should be ruptured, the pressure of the bleeding may not be sufficient to strip the dura from the bone. Vance and Le Count also found extradural hemorrhage to be more frequent in the third decade. The youngest patient in our series was two years of age. He had an extradural hemorrhage caused by a fall to the pavement while at play, without primary unconsciousness. While extradural hemorrhage is usually associated with light blows to the head, it may also be found in the most severe head injuries.

The clinical picture presents a syndrome which is generally easy to diagnose in a case of typical extradural hemorrhage. The history of an apparently trivial blow with pri-

mary unconsciousness of short duration, followed by a period of consciousness, or the so-called "free interval," and later stupor and unconsciousness, makes the diagnosis almost certain. During the stage of consciousness, when the dura is being stripped from the bone by the clot, there is most severe headache. The patient frequently tosses about in the bed and holds his head because of the severe pain. This sign is usually so typical that the diagnosis may be strongly suspected. Another fairly consistent finding is the slowing of the pulse rate, which is frequently as low as 40 or 50. There are exceptions, however, and occasionally we see a patient with a normal or accelerated pulse rate. The slowing of the pulse is a more constant finding than an elevation of the blood pressure. Only about half of our cases showed any elevation of blood pressure. This is probably due to the fact, as Cushing<sup>6</sup> has shown, that the intracranial pressure must equal or exceed the blood pressure before any considerable elevation of the latter occurs. Vomiting usually occurs during the progress of the cerebral compression. In addition to these general pressure symptoms, there may be focal signs. In our own experience, as well as that of Holman<sup>7</sup> and others, the dilated pupil on the same side as the hemorrhage is one of the most important signs of local compression. In a recent paper<sup>8</sup> before this society, this point was discussed in connection with extradural hemorrhage. Equal pupils do not exclude a hemorrhage in an early case. Likewise, unequal pupils do not always mean an intracranial hemorrhage. The inequality may be fleeting and soon followed by bilateral dilatation, and this unilateral dilatation may not be recognized unless frequent observations are made. Cushing<sup>9</sup> states that the dilatation is preceded by a temporary contraction of the pupil on the same side as the hemorrhage. In one of our cases there was a contracted pupil on the same side as the hemorrhage. Other focal signs may be paralysis or reflex changes on the opposite side. Paralysis is a fairly late sign and usually does not occur unless the compression reaches a high degree and involves the motor area. If the hemorrhage occurs on the left side, some degree of aphasia may be expected from pressure upon the temporal lobe.

The whole clinical picture may be confused in the severe injuries, especially the ones with intradural damage, such as contusion or laceration

of the brain and subdural hemorrhage. We frequently see in our cases of fracture of the skull a severe contusion and laceration of the brain on the opposite side from contrecoup injury. There may be extradural hemorrhage on the same side as the fracture, with severe contusion or laceration of the brain on the opposite side. In such a case there may be a hemiplegia on the same side as the extradural clot. It is usually safe to follow the dilated pupil in determining the side on which to operate. Rand<sup>10</sup> reported a series of cases in which the dilated pupil was on the same side as the hemiplegia. He operated on the opposite side to the hemiplegia and found later that the hemorrhage was on the same side as the dilated pupil. Examination of the eye grounds may give very little help. They may show some dilated and tortuous vessels and slight blurring of the discs, which are signs of increased intracranial pressure. It is best not to follow any one sign in reaching a conclusion, but the whole clinical picture should be considered.

The treatment is immediate operation as soon as the diagnosis is made. There is probably no greater emergency and none that will tax the skill of the surgeon more than a successful termination of a case of extradural hemorrhage. The operation can usually be done under local anesthesia, as the patient is generally stuporous or unconscious. Frequently he will rouse up after the clot has been removed and seldom a light general anesthetic will be necessary. The opening is made in the temporal region like that for a subtemporal decompression, or slightly posteriorly if the clot is suspected in this location. Some clots may be encountered between the temporal muscle and bone from escape of the blood through the fracture. As the bone is exposed, a bluish discoloration will indicate the clot lying underneath. When an opening is made in the bone, the clot extrudes. It is best not to begin removal of the clot until all of the necessary bone removal has been done, as active bleeding is started as soon as the clot is dislodged, and this will entail an unnecessary loss of blood. One portion of the clot may be dark and firm, and another bright red from a more recent hemorrhage. The clot should be removed a little at a time, and the bleeding points controlled with a ligature or a muscle graft. This will help to conserve the blood. As additional portions of the



clot are removed, more bleeding points are found and controlled, until the entire clot has been removed. It is extremely difficult to do the operation well without the proper equipment. One important thing is sufficient illumination. The electrically-lighted spatula, used in ganglion operations, is almost indispensable in our experience in locating the bleeding points away from the opening. Frequently there may be profuse spurting of blood from a ruptured trunk or branch of the middle meningeal artery. In this event the blood will obscure the field and prevent a successful ligation. I have found it helpful to have an assistant press firmly upon the carotid artery on the same side, until the ruptured vessel can be ligated. Usually a muscle graft will be sufficient to stop the bleeding from the venous points or in places where a ligature is not convenient.

Sometimes the bleeding is so profuse and the loss of blood becomes so alarming that it will be necessary to leave a gauze packing in the wound to control it. We have seldom had to pack, and it should be used only as a last resort, since it may cause some compression within itself. In our experience the cases that required packing have done poorly until the packing was removed. It should be removed the fourth or fifth day or earlier, if the patient is not doing well. Plenty of time should be taken to control the bleeding so as to leave a dry field. A rubber tissue drain is advisable for one or two days. As a rule it is not necessary to open the dura, as there is usually no intradural pressure after the clot has been removed. Indeed, there is more or less a large cavity left and it is a problem to obliterate it so that additional clots may not accumulate.

The prognosis will depend upon an early diagnosis and prompt operation, with removal of the clot and control of the bleeding. Reports in the literature give a high mortality, usually about 50 per cent, even in the cases operated upon. Without operation, naturally the mortality would be 100 per cent. We have been successful in saving thirteen of the seventeen cases in our series. As stated before, sixteen of these cases were operated upon and one of the cases died before operation could be performed. This case illustrates the importance of an early diagnosis, as the patient may

go into coma and die while the operating room is being set up.

#### CONCLUSIONS.

1. Extradural hemorrhage is the most serious emergency requiring operation in a fracture of the skull.
2. It usually follows light blows to the head in young adults, although it is not infrequent to find it associated with contusion and laceration of the brain and subdural hemorrhage.
3. The most important signs in the diagnosis are the dilated pupil on the same side as the hemorrhage, history of a "lucid interval," severe headache during the period of consciousness, slowing of the pulse rate, and probably an elevation of the blood pressure.
4. Prompt operation under local anesthesia with removal of the clot and control of the bleeding is necessary to save life.
5. Seventeen cases are reported with four deaths. Sixteen of these were operated upon, of which three died.

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*Professional Building.*

### PRESIDENT'S ADDRESS TO THE SOUTHWESTERN VIRGINIA MEDICAL SOCIETY.\*

By A. M. SHOWALTER, M. D., Christiansburg, Va.

FELLOWS OF THE SOUTHWESTERN VIRGINIA  
MEDICAL SOCIETY:

This being the first opportunity presented, I trust even at this late date you will accept my sincere and deep appreciation for the very high honor conferred upon me when I was elected by you to the very responsible and distinguished office of president of your society. Words are inadequate to express my apprecia-

\*Address of the President before the Southwestern Virginia Medical Society, at Galax, Va., September 16-17, 1929.

tion and gratitude for the many courtesies and privileges accorded me by the fellows of this society, and I shall always remember with pleasure the many happy experiences of the year just past. Not only with pleasure do I recall the events of the past, but also with a degree of satisfaction and pride, for the experience has to me been both profitable and interesting, and I trust you may be able to say the same thing. Again, therefore, as far as words can convey human sentiment and human appreciation, let me thank you for the confidence reposed in me. With the hope that in some way I may have measured up to the very high *ideal* which I am sure you hold for the highest office in your power to bestow, it may not be inappropriate to bear the following thought in mind:

"Success is being friendly, when a fellow needs a friend,  
It's in the cheery words you speak and in the coin you lend.  
Success is not alone in *skill*, and deeds of daring great,  
It's in the flowers you plant beside your garden gate."

If, therefore, I have measured up to this standard of success to even a slight degree, I shall feel profoundly thankful.

In connection with matters of interest to our Society, my attention has been called to the fact that we now have on hand in our treasury approximately \$1,000.00 in cash, which it does seem to me should be used for some definite and specific purpose, and to this end may I hope the Executive Committee will make some recommendation to the Society for some definite action.

Another matter which I regret very much it is necessary for me to mention is the fact that, of our 172 members, we still have thirty-eight who have not paid their dues, in spite of the fact that notices of this have been sent out every month for the past year. If you consider the cost in time and material to send out these notices it is a considerable item of trouble and expense, and yet as far as the individuals are concerned it would mean little to any member of the Society to send a check one time as well as another. May I urge upon the members of this Society particularly that they give the Secretary a little better co-operation in this respect, with the assurance their efforts will be very much appreciated on his part.

#### NEEDS AND HISTORY OF SOUTHWESTERN VIRGINIA MEDICAL SOCIETY

The increased responsibilities thrust upon us as citizens, each year that we live, emphasize more and more the necessity of organization in every branch of human activities, because of the fact that not only in union is there an increase of individual strength but for the further reason that *co-operation* and *team work* are, and should be, the keynote of our very vital existence in the particular age in which we live.

Medical men and medical problems are no exception to the general rule. Starting with a few men in the beginning and gradually working its way up to the top, with the usual ups and downs confronting societies of this kind, we stand today as a medical society, the largest from a standpoint of membership, and unquestionably the most *important* medical society in the State of Virginia, next to our own State society. We have today a membership of 172 medical men, standing at the top of the ladder of professional proficiency, whose ability and integrity has seldom been equaled and never surpassed in the history of medical affairs, and the number is being increased annually at a rapid rate.

Our society has always emerged from every storm through which it has passed, as a result of the personnel of its membership, a bigger and stronger institution for good, until today we represent a force and power in the community in which we live, never before enjoyed by this or any other society. May we not, therefore, hope, as we expectantly believe, that our future will be brighter, more efficient, and more glorious than the past, just as each star in the great firmament of Nature seems to outshine with its brilliance and lustre the ones we have viewed before. So we may look to and anticipate what the future may bring forth with its honors and responsibilities, its joys and sorrows, and, by a comparison with the past, picture to ourselves for a moment what may be some of the duties of the future, and what the privileges. Perhaps no other one thing resulting from medical society associations may be considered as valuable as *contact relationship*, which tends to develop *fellowship* one with another and *friendship* for all, bearing in mind the great truth uttered by the poet, when he said:



"The finest business in the world is that of making friends;

No investment on the street pays larger dividends."

Certainly no other school or educational institution can be said to offer as valuable a course of practical education as that afforded by the associations of a good medical society, composed of good and valuable men in the community in which it exists. From a standpoint of duty may our resolutions for the future be a determination to see that the reputation of the Southwestern Virginia Medical Society may be kept pure and unsullied, and may the "sunlight of honor and renown, delight to linger and dwell amid her venerable branches."

#### AIMS AND OBJECTS OF A MEDICAL SOCIETY

What, then, should be some of the fundamental aims and objects of a medical society, and what the purposes and privileges of this particular society? The fundamental aim and object of this organization, like all others of a constructive nature, is and should be the making and developing of more valuable and serviceable *men* from our membership as well as mankind in general, with whom we come in contact, both as *physicians and citizens*, for a good physician and a bad citizen are just as incompatible and as much an impossibility in one human being today as in the days of Pythagoras, Hippocrates, Aristotle, and Galen, 2,000 years ago, or, more recently, in the age of Pasteur, Lister, Oliver Wendell Holmes, and Semmelweiss. The outstanding character of all times to call attention to and emphasize this point was Hippocrates, which he did with every degree of emphasis in his various writings, and which writings have been given the stamp of approval by every generation of reputable and noteworthy medical men from that day to this. Hippocrates had little to say about the scientific side of medicine compared with the emphasis he placed upon the evenly balanced education and development of a man, both from a moral standpoint as well as from a scientific standpoint, as a proper *prerequisite* for the successful practitioner of medicine. The great Arabian physician, Rhazes, an outstanding character of the ninth century A. D., also called attention to the same line of thought and responsibility, emphasizing the need of certain worthy qualifications for physicians outside of their scientific knowledge, though at that time it was distinctly understood that *little* was to be ex-

*pected of the surgeons* or their accomplishments. For instance, from his writings we gather this statement: "Among those factors which make the people turn away from the *intelligent physician* and place their trust in *imposters*, is the delusion that the physician knows everything and requires to ask no questions. If he inspects the urine or feels the pulse, he is supposed to know what the patient has eaten and what he has been doing. This is lying and deception, and is only brought about by trickery, by artful questions, and speech through which the senses of the public are deceived," etc. May we not ask ourselves the question, if this condition of insincerity does not exist to an extent or degree with us today, and, if so, what a wonderful opportunity for a medical society to use its influence for the correction of such irregularities, thereby helping to stamp out and destroy the chief source of *food and support* for the *quack* and *charlatan*, and at the same time bring into being a group of men as physicians, who can indeed and in truth measure up to the poet's definition of a "true man," when he said:

"This is the kind of man was he,  
True when it hurt him a lot to be;  
Tight in a corner, and knowing a lie  
Would have helped him out, he wouldn't buy  
His freedom there in so cheap a way,  
He told the truth though he had to pay."

It seems to me we, as physicians, are suffering more from lack of a public confidence, without which we are definitely and permanently handicapped, on account not so much of lack of faith in our technical or professional ability as on account of lack of faith in us as men and as citizens. In other words, to accomplish what we all wish and desire as men and as real physicians to accomplish, we must lay the foundation for a public faith in our reliability as well as our ability. We must learn to respect our profession, whether we respect ourselves, families and friends or not. We must bring ourselves to realize the fact that we are not judged by the same measure as we would be perhaps in some other vocation or profession, and, consequently, the responsibility of so-called citizenship is materially increased because you and I are *doctors of medicine*. No amount of *scientific knowledge* will avail us anything, or the world at large anything, unless we can make the

proper *contact* through our *personal qualifications*, any more than an electric light can burn if the wires are broken and *contact* is unestablished or interrupted. The laws of the land in which we live take cognizance of this fact and hold certain people liable to a greater extent, on account of their professional relationships, than they do others. And so, whether written down in the codes of the common or statutory law of the land in which we live, or not, it is written indelibly on the minds of the people who make the laws of this country and to whom we are held liable and to whom we must render an account of our stewardship. I once heard a prominent man say when speaking before a body of young medical men, that "Tact and good manners in a sick room were of more value to a physician than all the scientific knowledge anyone would ever obtain," and Oliver Wendell Holmes once said to the graduating class of the medical department of Harvard University on the subject of "*Suppressa Vera*," that members of the medical profession as a rule were the most efficient liars of all other professional memberships. Robert Ingersoll, speaking of the comment that Shakespeare must have been a physician, once stated, "I do not think he was, because he knew too much; his generalizations were too splendid; he had none of the prejudices of that profession in his time."

Sir Astley Cooper once described the medical profession as founded on conjecture and improved by murder. These quotations, of course, are merely made to remind you of what some of the real thinkers of the past have said about the medical profession, and are considered at this time by way of an inventory idea as to the extent of their correctness, or the reverse.

Now, with this prelude, may I ask your indulgence and co-operation for a short time while as we consider the real gist of what I desire to say to you, which, for want of a better term, I have defined as the *Non-Technical Assets* of the medical profession.

#### PROFESSIONAL COLLATERAL OR NON-TECHNICAL ASSETS

We as physicians today are living through a period of time unlike any other through which the world has passed, as no two periods of time are ever any more alike than any two individuals. We are passing through what

has been termed an evolution, if you will pardon a much-abused and over-used term, from the period of almost complete darkness and obscurity as far as causes and cures for diseases are concerned, to a period of time when we are just beginning to catch a glimpse of the dawn of the day of enlightenment, when the real causes and the real cures for diseases will be known and practiced; and then, indeed, the exact and specific methods of dealing with sick people will be a pleasure as compared to the inexact and unspecific methods at hand today. As we ourselves are passing through this evolutionary period and trying to adjust ourselves, so also we have the problem of helping our patients to adjust themselves to being treated by specific remedies in the one case, and symptomatic or experimental remedies in the other, and at the same time maintain a degree of faith and confidence consistent with a goodly percentage of recoveries; for, argue as you wish to the contrary, faith born of confidence is, as you well know, one of the most valuable remedies we have at our command in all of those diseases which we treat by so-called symptomatic methods. Is it not natural, therefore, and at times apparently almost justifiable for us to claim those very *untenable* claims, which our patients would like, through ignorance, to pin their faith to, with reference to the various therapeutic means we have at our command, rather than stick religiously to the doctrine we are taught in our schools of instruction, that *honesty is the best policy*? Is it also any wonder that the average layman has difficulty this day and time in making that proper distinction between a well-trained, conscientious practitioner of medicine, and one who takes advantage of the so-called ignorance and gullibility of his patients, based upon the facts of his inheritance in the faith of the fathers as pertains to the treatment of human diseases? Now, if this is the case, may it not be possible for us to inspire the mind of the public to a degree of faith and confidence, more readily by indirect than by direct means?

As we take a cross-section view of ourselves or our medical associates and inventory our assets and liabilities, do we ever stop and ask ourselves the question, like the greatest Teacher of all times asked of those about Him, "Whom do men say that I am?"—and then stop and consider what the answer would be? If so,



what is the answer, and what is the ultimate conclusion we come to? Do we ever stop and take an inventory of ourselves, and compare our assets and liabilities, just as every business concern takes an inventory of itself to determine its standing from a standpoint of assets and liabilities? If so, what do we find to build up and elevate more than any other? Is it our professional or technical knowledge, or is it something else which we may, for want of a better term, define as professional collateral? There are many men today, and I doubt if there is anyone under the sound of my voice who cannot recall characters of this type, who are *rich in professional knowledge* and *bankrupt in those personal qualifications* which are necessary to that contact which is so essential to success in a professional way, and who are, therefore, passing through this life complete failures as a result thereof.

The frequency with which we hear subjects of a technical nature discussed and the volumes of literature that are being published apropos of the same subjects, has inclined me to a discussion of a so-called side-line subject, for I implicitly believe that no amount of scientific knowledge will be of any value to us unless we can bring it into action, any more than the millions of dollars worth of electric current now going to waste in our streams of water will continue to go to waste, and so be of no value to us, until we harness it up and make the proper contact.

Therefore, it seems to me, by way of suggestion or constructive criticism, if you will pardon a much abused term, no better subject may be considered today than the so-called professional collateral or "side-line" knowledge and practices, which it is necessary for a physician to have in order to put into play the professional resources he may have. And especially does it appear to me to be of importance today because it seems only fair to say that the best remedy for some of the ills incident to the successful practice of medicine is the use of the side-lines of our natures and less of the scientific. In other words, if we can get *under the skin*, so to speak, of the people generally, by any means that is not unjust and unfair, until you have the confidence and good-will of the public, then it is easy enough to apply your scientific knowledge. Would not a careful consideration of this idea save each of us many unfortunate

experiences, and would it not save each of our friends, or a great many of them, the embarrassing predicament of being victims of the gold brick charlatan who lives like a parasite upon the ignorance of its victims? The most of us tend to lose patience with our patients when they fail to realize the significance of our scientific knowledge, and, therefore, we lose patients for lack of patience, at a time when we need them most. Did you ever stop and compare the contact relationship of a physician who has successfully practiced medicine for thirty years with a young man just out of a medical school, or, worse still, just out from a few years of hospital experience, when the most of us really know (?) more than at any other period of our lives, that we really and truly are wiser than the rest of the world? Is this not a fact as well as a human tragedy? Think of the story of the doctor's reply to a young nurse when she said to the aged M. D. about one of their patients, "Doctor, these people are such fools." The physician replied, "Sh, if there weren't a lot of fools in this world, you and I would starve to death,"—an exaggeration of a great truth.

*Patience!* How far does anyone ever get without it in life, and how little of it do we have or practice when we first start on our medical careers? How far does lack of it go in driving the public to the quack and the charlatan, and what a wonderful stepping stone it is also to that greatest of all human faults and human frailties, *inconsistency*, which in itself is an absolute bar to success in any profession or calling that may be termed fair or decent! Did you ever stop and analyze the reply of the average physician to a so-called ignorant or at least innocent layman who asks about certain patent medicines? And see, perhaps, how quickly and forcefully, and without due process of courtesy or reasoning, he, the physician, will denounce a patent medicine just because it is a patent medicine; and then did you ever stop long enough to look on the shelves of these self-same physicians and see what a percentage of them have patent medicines in use in their families if not for their own benefit or detriment? Did you? If you haven't, go out and look the world over, and you will find one of the rational answers to the why and wherefore of the so-called *cults* and vicious practices that we have to contend with today, and at

the same time one of the fundamental reasons for the lack of public confidences, which we hope to enjoy, and which, if we had, we could legislate against infectious diseases over-night in a way that would save hundreds of thousands of human lives annually. We would thus turn the tables on the quacks so quickly they would pass out of existence so rapidly another generation wouldn't know they had ever existed, save from a theoretical knowledge of history. *Patience* and *consistency*, then, gentlemen, should be the watchwords of our lives, not only as physicians, but as citizens of this country in which we live.

Again, let me repeat that with the wonderful contributions of a scientific nature that the medical profession has made during the past, the vast amount of knowledge they have acquired, and the wonderful amount of *confidence* and *fear* as well as respect the world has for the medical profession, if we could only bring our collateral up in keeping with the scientific side of our lives, we would, as the slang phrase expresses it, have the "world by the tail with a downhill drag." And, after all, is the world not right in this requirement? Ought not the greatest and most important responsibilities in life be entrusted to the greatest and truest and finest examples of citizenship? Is it not well to realize the fact that we should respect the profession of medicine with a greater degree of responsibility than we respect even ourselves, and refrain from doing some things because we are doctors of medicine, rather than because we are members of a certain social class or standard? Have you not often wondered, just as I, to what extent our viewpoint in this respect has been molded by the ideals and associations around our own medical colleges? Is it not a good idea to take an inventory of our faults as well as our accomplishments in life occasionally, and see to what extent the sheet of our lives balances? But you may say, this is an ideal, and one that cannot be worked out in a practical way. Is it, or not? How about the *honor system* in the practice of medicine as well as in our medical schools? We go through our colleges respecting and studying and boasting of the *honor system* by which the affairs of the school are run and maintained, and seem to place on the shelf of the most concealed closet of our lives all the valuable lessons learned therein just as soon as we get

out in practice. Is there not a great big truth in this statement? And how by contrast would the professional world look to the rest of the world if each one of us as physicians could associate the wonderful leverage of technical knowledge which we have to a greater or less extent with the creed of our poet, when he said:

"I have to live with myself, and so  
I want to be fit for myself to know.  
I want to be able, as days go by,  
Always to look myself straight in the eye;  
I don't want to stand, with the setting sun,  
And hate myself for things I've done.  
I don't want to keep on a closet shelf  
A lot of secrets about myself,  
And fool myself, as I come and go,  
Into thinking that nobody else will know  
The kind of a man I really am;  
I don't want to dress up myself in sham.

"I want to go out with my head erect,  
I want to deserve all men's respect;  
But here in the struggle for fame and self  
I want to be able to like myself.  
I don't want to look at myself and know  
That I'm bluster and bluff and empty show.  
I can never hide myself from me;  
I see what others may never see;  
I know what others may never know,  
I never can fool myself, and so,  
Whatever happens, I want to be  
Self-respecting and conscience-free."

In other words, when you have builded around your professional resources a fence of insincerity and unfair dealings with your fellowman, of impatience, inconsistency, dishonesty, immorality, unfairness, and, above all, an indifference to those qualifications that are necessary to a real high grade citizenship, then you have placed a handicap around yourself, which you can never overcome as long as it exists. Would an automobile ever be of any service to you locked up in the garage to rust and decay and never be used? What would be the use of having money or anything money could buy, or having character or anything character can beget, and lock it up in such a way that it can never make the necessary contracts in life for any good purpose? Will scientific attainment ever be of any service to the world and humanity, and reflect any credit on the one who possesses it, if it is never turned back into the great current of service to the world for its use and enjoyment? Would your medical knowledge ever be of any service to you or to the world if you stay at home in bed and never go out into the world and put it to use? On the contrary, how about making of yourselves as



citizens, just as you have as physicians, "charmed pebbles" on the shores of the great sea of life, turning into gold and precious metals everyone with whom you come in contact?

Did you ever hear of a physician's forgetting that a patient when sick physically is not presumed to be well mentally, and going so far as to attempt to discipline the patient? Try, then, and figure out what it cost the physician who made the mistake. The cost in dollars and cents is trivial, but the cost in influence for good is high. Let us always carry with us the thought, "O wad some power the giftie gie us, to see ourselves as ithers see us." May we, therefore, always remember that our guide and watchword should ever be those fundamental traits of character and citizenship which are always necessary to good, efficient service, and to success in any line of endeavor. And so, "if we can keep our heads when all about us are losing theirs and blaming it on us," and not be swept from the pedestal of prudence and justice by any tide of irrational thought and action, then and only then will we be able to say, like the faithful watchman of the night, "All's well."

### PRE-NATAL AND POST-PARTUM CARE OF THE MOTHER.\*

By JAMES M. MILLER, M. D., Wytheville, Va.

I do not know just what the members of the Executive Committee of this Society have against my friend, Dr. Woolling and myself, but if the punishment meted out to us is intended to be commensurate with the crime committed, then, their grievance must indeed be great. I can honestly assure this committee, however, that prior to the assignment of this subject, or, more properly subjects, I had only the kindest feelings towards each individual member. The more I think of the task assigned us, the greater apparently must be our culpability in their sight, for some fancied wrongs done them. The plural word is used here advisedly, for in some way or other unknown to us, we must have committed a most atrocious crime or crimes against the body as a whole, as the punishment is entirely too extreme for a wrong against an individual.

Pre-natal and post-partum care of the mother! Just what does this embrace? If you will think it over, and sweat over it as

I have done, you will doubtless come to the conclusion that it is almost all-embracing, and its handling truly a man's size job. Could not this subject without unduly stretching its meaning, be made to embrace all of a woman's life, from the cradle to the grave? Her physical development while a babe, as also while a child, has much, perhaps I should say all, to do with her child bearing life, and her condition and care while pregnant, and during post-partum period determine, to a great extent at least, her well being in after years. So, consideration of this subject in its broadest sense would include all of a woman's earthly pilgrimage. After more or less serious thought and consideration, and being naturally of a forgiving spirit, it has occurred to me that this committee did not wish to unduly punish us, but merely intended that we, in a more or less cursory sort of way, should mention some of the more important conditions to be considered in pregnancy, labor and the lying-in period, and thereby, perhaps, provoke discussions that will be interesting and profitable to those of us engaged in obstetrical work.

This is, and the future will become increasingly so, the day of preventive medicine. It is probably not too much to expect that within the next several years all infectious and contagious diseases will become amenable to preventive measures. Is it not also within the bounds of reason that we may learn how so to live that such organic troubles as the various heart lesions, as well as those of the kidneys and other organs, may be, if not wholly prevented, at least reduced to the minimum? Be this as it may, there is one class of medical work that will always demand and receive attention. Obstetrics has been practiced in some form or other probably since the first year in which woman was created, and will continue to be practiced so long as humanity exists. But enough by way of introduction.

Very little if any thing that I shall say will be new, and probably nothing will be original. There can be no such thing as unvarying routine in the practice of obstetrics. Every case must be a law unto itself, as it will differ in varying degrees, in some particulars at least, from every other case. All expectant mothers, however, need encouragement, jolly along, and most of them will not only live and thrive upon this, but do admirably well.

The first thing to be determined when an

\*Read at the meeting of the Southwestern Virginia Medical Society in Galax, Va., September 16-17, 1929.

expectant mother places herself under our care is to ascertain if she is really pregnant. This may be an easy or impossible task, depending upon the period of gestation, as well as upon other conditions. Cessation of menstruation is classed as one of the earliest presumptive signs. We cannot, however, place too much faith in this, as a woman may become pregnant before she has ever menstruated. She may become pregnant during the amenorrhea of lactation, or that due to other causes. Again, instead of cessation of menses during pregnancy, menstruation may continue for at least one or two months. Morning sickness is to be reckoned with in from one-third to one-half of all cases. This commences usually about the fourth week, but may begin earlier. Perhaps salivation and changes in the disposition of the pregnant woman should be mentioned as quite often early signs. The latter may amount to nothing more than a slight irritability, or it may be so pronounced as to make the home life, especially for the husband, almost, if not quite unendurable.

Among the early objective signs may be mentioned changes in the breasts. As early as the fourth week there may be enlargement, tingling, burning and discoloration around the nipples. Bluish discoloration of vulva, vestibule and vagina occur as early as the eighth to twelfth week. Hegar's sign may be elicited as early as the sixth week. This sign, as you know, is softening and compressibility of the isthmus and lower uterine segment. Marion Douglas, of Cleveland, in the *Journal A. M. A.*, of August 19th, claims we can be reasonably sure of pregnancy in a week or ten days after conception. This, to my mind, sounds too good to be true. His sign is as follows: The examining finger advances up anterior of uterus until uppermost point of cervix is felt, above which is the slight depression marking the site of the future lower uterine segment. This is the forerunner of Hegar's sign. At this point a rubbery elasticity may be felt very early and an edemic pitting obtained which persists for some time after removal of depressing finger. To those able to divine the future, of which number I am not one, this sign may be very valuable. There would necessarily be so little change in the form and consistency of the uterus in a week that he who could definitely ascertain this change would indeed be a wizard in this particular field.

In the second trimester of pregnancy, we have the subjective symptom of quickening, and the objective ones of both active and passive movements of the foetus.

What of the diseases occurring during pregnancy? There may be many, but I shall mention but three, namely, excessive vomiting, albuminuria and eclampsia. Vomiting, as already stated, occurs in from one-third to one-half of all cases, and may be slight, or so severe as to seriously endanger the life of the patient. We may disregard slight nausea and vomiting, if the patient will let us, but the severe persistent form, called pernicious, or hyperemesis gravidarum, will be difficult, sometimes impossible to relieve, depending to a great extent upon whether it is due to neuroses or toxemia. Nearly every drug in the pharmacopeia has been used, both with apparent success and failure in the neurotic type of this trouble, thus proving that in this condition suggestion is more potent than drug therapy. In those cases due to toxemia, the proper course is, if possible, to find the cause, and then endeavor to remove it. Failing in this, it may become necessary to empty the uterus, but this should never be done unless patient has been seen by one or more other physicians, and they have concurred with us both in diagnosis and treatment. Albuminuria in pregnancy, just as the vomiting of pregnancy, may amount to very little, or be of the gravest concern. As to the cause of this condition, you may take your choice of those given by the various authors, confident in the fact that, while you may be wrong, it probably cannot be proven, and there are a sufficient number of others holding the same belief, so you will not be so very lonely. In my opinion, systematic examination of the pregnant woman's urine, at stated intervals, the intervals lessening as pregnancy advances, is of vital importance. Blood pressure readings taken frequently are also of great value. If these two procedures are followed, and findings carefully weighed and considered, we will usually diagnose this trouble in its incipency, when preventive and remedial measures are most effective. The laity, especially those living in the rural districts, need much education just here, and it is our duty, when we are engaged to attend the patient, to inform her of the great importance of these examinations. Preventive treatment, not only in obstetrics, but in every field of medical prac-



tice, is slowly but surely coming into its own. There is, however, a vast amount of missionary work yet to be done.

Much that has been said in regard to albuminuria in obstetrics applies equally as well to eclampsia. Here you can also pick any of a number of supposed causative factors, and have just as good a right to your opinion, so far as proof is concerned, as has the other fellow to his. By careful periodic examinations of urine and blood pressure, we may often, by proper hygienic and other measures, be able to forestall and prevent this terrible and alarming condition. If not, and it progresses to the gravest stage of persistent convulsions, there is, in my opinion, but one thing to do, namely, terminate pregnancy as quickly as possible, employing that method offering most safety to the mother. The trend recently seems to be away from the radical Cesarean operation to more conservative modes of treatment, the prognosis being more favorable for both mother and child.

There are many other conditions often arising in the pregnant woman worthy of consideration, but time forbids that we discuss them.

We now come to the management of labor. If I were a teacher of obstetrics, I would try very hard to impress two things upon my pupils, namely, the practice of cheerfulness and cleanliness in the lying-in-room. Not only should the physician be cheerful, but also, if possible, he should induce it in the patient and attendants as well. Be surgically clean yourself, and endeavor to keep patient the same way. If you can better accomplish this by wearing rubber gloves, then by all means wear them. If you can better maintain this condition by making your examinations through the closed rear door of the rectum, rather than by way of the open front door of the vagina, then make use of the former entrance. If you happen to be that *rara avis*, who can ascertain all that he wishes to know by abdominal palpation, then use this method, praying that you may be right in your interpretation of things hidden from common mortals. Having by examination ascertained condition of the birth canal and presenting part of child, and having encouraged the patient, we may, if we are sure that we will not be needed for some time, retire, I mean from room, not from the case, unless we see that it is more than we can handle successfully. Perhaps we had better remain

in the immediate vicinity even then, summon a brother physician, and "let George do it."

Time forbids that we take up each presentation and follow its consecutive steps to a more or less successful delivery. Much as I would like to do so, I shall have to forego the pleasure of reproducing *in toto* some author's work on obstetrics. There are many interesting conditions that may arise in any case of labor. Occasionally we are confronted with difficulties upon the proper solution of which may depend the future physical and mental well-being of the mother, the child, or both; possibly the issue may involve life itself.

How can we best handle occipito posterior positions, transverse presentations, face cases, placenta previa, prolapsed funis, eclampsia and many other conditions? What of Potter's version? Is it, as some claim, a panacea for most of the difficulties arising in labor? Should it be routine practice?

What of pituitrin in labor? This drug is worthy of any obstetrician's consideration, and I cannot forbear from making some remarks in regard to it. Perhaps there is no drug more potent, both for good, when properly administered, and for evil, when improperly used, than is this. It should never be employed as a routine measure, but only when there is some unmistakable indication for its use. I believe it has its place in all three stages of labor. Do not misunderstand me here. I do not mean in every, nor in the majority of cases. In the first stage, with pains far apart, especially if this condition has continued for hours, with patient becoming tired, discouraged and nervous, a dose of two or three minims of pituitrin, repeated if necessary every twenty or thirty minutes, will often give satisfactory results. In the second stage, with os fully dilated, and no cause for delayed delivery except lack of pain force, a dose of from three to five minims will usually terminate labor with no bad results. A large dose at this time, say one cubic centimeter, unless we have found smaller doses insufficient, would be almost, if not quite, criminal. When this drug was introduced the dose recommended was one c.c. All of us older physicians, who did obstetrical work at that time, remember the frightful pains produced when that amount was given. That, very likely, is the reason the drug has fallen into disrepute, and deservedly so, when given in such doses. Pituitrin also has its place in caus-

ing expulsion of retained placenta and in controlling post-partum hemorrhage.

What of the care of the mother after delivery? After seeing that the child needs no immediate attention at this time, we should devote our entire care to the mother, especially in trying to prevent post-partum hemorrhage. How can this best be done? She should be given teaspoonful of fluid extract of ergot, immediately before, or just after, the child is born. All pillows should be removed from under the head at once, so as to increase blood supply to upper part of body and lessen it to lower part. Lastly, but perhaps of most importance, the womb should be kneaded through the abdominal wall for fifteen, twenty, or thirty minutes. This, in my judgment, should be done for ten or fifteen minutes, even though there is good contraction. Pillows should be left out from under head for at least one hour with patients who are doing well, and who have no more hemorrhage than they should, and for a longer time with those whose flow is too free. After the first day, however, the head should be kept elevated either by pillows, or by raising head of bed, whichever the patient prefers. In other words, give the womb drainage, and by this means reduce to a minimum the danger of puerperal infection. For this reason, I encourage my patients, if doing well, to sit up in bed in three days. If we are careful in regard to asepsis, and drain womb in the manner suggested, we will rarely see a case of sepsis after labor. It seems to me that this disease is rapidly declining anyway, possibly due to improved technic upon our part, but perhaps more to education of the laity. It would be interesting to know just what the obstetricians here today think of this statement.

I shall mention but two post-partum conditions, lacerations and mastitis. We all agree that, with few exceptions, lacerations should be repaired immediately. Occasionally the condition of the mother will be such that she should not be made to undergo this small extra shock, but this will be the case very seldom. Inflammation of the breasts, or mastitis, is so painful and so quickly undermines the patient's health, that it deserves our very best thought and consideration. If proper care is given the nipples during the latter months of pregnancy, mastitis will be rarely seen. The patient should exercise great care in avoiding injury to nip-

ples by corset, dress, or in any other manner. The nipples should be kept scrupulously clean, and those that are too soft should be hardened by astringent lotions, and those too hard softened by applications of vaseline, or cocoa butter. It is a little difficult to get the average pregnant woman very much interested in a condition apparently so remote as mastitis, a trouble that she may never have. The treatment, as a rule, is quite simple. If the baby is removed from the breasts for a day or two when this condition first begins, the breast may be snugly bandaged and ice-bags constantly applied, provided the skin will bear this continuous application, and the trouble will often be aborted. If it is not, and goes on to sup-puration, there is, of course, but one thing to do—evacuate and drain.

There are other pre-natal and post-partum conditions worthy of consideration, but this paper is already sufficiently long, probably too long. If it succeeds in provoking an interesting discussion on any phase of this important work, it shall have fulfilled its mission.

### THE MANAGEMENT OF THE RACHITIC CHILD.\*

By T. R. BOWERS, M. D., Bristol, Va.

In opening the discussion on this subject, a brief review is made of the condition termed rickets, considering its different phases, etiology, symptomatology, pathology, and treatment. A review is also made of the progress made in the studies and research relating to this condition. In doing this, we recognize the widespread prevalence of this disease, and learn to appreciate the valuable contributions of workers in this field. Again, we are stimulated to utilize facts thus far established in our efforts toward the prevention and cure of this disease, and workers are encouraged with their results to continue research.

Rickets, with our present knowledge of its etiology, may well be classed among the deficiency diseases. It is a disorder of the mineral chemistry of the body, occurring in infancy and childhood, and characterized by imperfect calcification of the bones, especially in the metaphyses and epiphyses; and, further, by retarded growth and development of both bone and muscles. It is accompanied by an alteration in the absolute amounts normally present, and the relation to each other, of the

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quantities of phosphorus and calcium in the blood serum. The disease, if not cured, results in functional disabilities of varying degree, and in permanent deformity of the skeleton.

### I.—HISTORY

Medical literature for the past three centuries bears discussion of rickets in its different phases, and recently Foote found evidence of the existence of the disease before the fifteenth century; however, credit is given Francis Glisson for its first description in his treatise on the subject published in London in 1650. He called the condition "rachitis," a term derived from a Greek word relating to the spinal column, on account of the kyphosis and rounded aspects of the back as seen in well developed cases. The older writings contribute accurate clinical descriptions, but only in the past few years has any real progress been made towards establishing its etiology and in explaining its behaviour under treatment. The great prevalence of rickets has long been appreciated, but since the advent of the roentgen ray it has been found to be much more common than it was previously thought. It is more common among the negro, due to the pigmentation of the skin depriving him of the benefits of the sunshine we enjoy. It varies with the seasons, being seen more in the Winter and early Spring. In the United States, it is seen to a greater extent in the Northern sections than further South, where the sunshine is more plentiful. Eliot, in her study of 179 infants in New Haven, found the existence of rachitic conditions in 12 per cent before the second month, and in 65 per cent before the sixth month. She states that "its presence seemed almost normal in the fat rapidly growing infants." It is most commonly seen in the last half of the first year of life, and is not often seen after the fourth or fifth year. It is seen more frequently among the artificially fed, but is no longer considered an infrequent condition in the breast fed. This realization of its great prevalence, and the establishment of preventive and curative means by recent studies, has served to stimulate further research, and no doubt but in the near future many of the yet questioned points will be clarified.

### II.—ETIOLOGY—PATHOGENESIS

Study so far has revealed unquestionable evidence that at least five factors are concerned

in the production of rickets; namely, sunlight, exercise and growth, calcium, phosphorus, and the accessory food substance now known as vitamin "D." It has been clearly demonstrated that exposure to sunlight not only checks a rachitic process, but causes a change in which the physiological processes of the body brings about a repair of the diseased and a return to normal function of the body. This change is apparently brought about by activation of the cholesterol in the skin of the animal or human exposed to the ultra-violet ray, whether it be from the sun, quartz or carbon arc lamp. In this connection, Hess and Steenbock, Weinstok, and associates, found that various oils and certain foods when irradiated always contained this anti-rachitic property, and subsequently irradiated ergosterol has come to us as the so-called "captured sunlight" for our use in the prevention and treatment of rickets. This is a valuable adjunct to our other proven means of attack on this disease. Hess first systematized the use of sunshine in the treatment of rickets, while its value, as well as that of cod liver oil and sea air had been recognized by older writers on the subject. The ratio and quantities of blood calcium and phosphorus is known to be disturbed in rickets, and it has been established that this disturbance is corrected by the use of irradiation or administration of the vitamin "D," or, better, by both combined. While vitamin "A" was formerly considered the anti-rachitic factor, it has been found that vitamin "D" is most active in its anti-rachitic qualities, and that vitamin "A" is more concerned with growth and development. With the exception of irradiated ergosterol, cod liver oil, properly tested and standardized, is the greatest natural source of vitamin "D." Second to this is cow's milk from cows receiving a proper diet. Experiments have shown that vitamin "A" content of cow's milk is determined entirely by the nature of the cow's food, and that the vitamin "D" content depends upon the degree of exposure of the cow to sunlight. Thus it is seen that the vitamin "A" is not manufactured in the cow, but just passes on into the milk from foods taken, while vitamin "D" is manufactured within the animal's body. From this conclusion is seen the necessity of the nursing mother having a reasonable exposure to sunlight, or an ingestion of cod liver oil. Considering the fact that often

neither of these requirements are met, it becomes necessary that the breast fed baby must be supplied with the known anti-rachitic factors in the way of exposure to the sunlight and administration of cod liver oil for its protection against rickets.

### III.—SYMPTOMATOLOGY

Rickets is a condition which is often overlooked, there being probably more cases unrecognized than are diagnosed, due to the fact that it is often not completely developed and does not attract the attention of the examiner. Among the earliest symptoms are restlessness, irritability, loss of appetite, and head sweating, with a rolling of the head from side to side. These are all suggestive symptoms and await further corroboration. The typical early case of rickets is that of a baby in the second half of the first year of life, fairly well nourished, and normal to casual examination, but which detailed investigation shows to differ from the normal in many respects—head somewhat square shaped, fontanelle widely open, with borders thin and yielding too readily to pressure. Areas of softness may be found on the lower aspect of the occipital or lateral portions of the parietal bones. Dentition is retarded. There is delay in the ability to sit alone, or in an effort to stand. A general atonic condition of the muscles is seen. Enlargement of the costo-chondral joints may be felt if not seen, and in the more advanced cases enlargements will be noted in the distal ends of the radius and ulna. Decalcified areas are shown by X-ray, while a decrease may be found in the blood inorganic phosphates. Rarely are all of these characteristic changes seen, but often a routine search will reveal some slight divergence from the normal in infants who upon casual examination seem to be normal. The more advanced cases are easily recognized; the head is definitely square, and slightly enlarged with prominent bosses and enlarged fontanelle. The costo-chondral joints are visibly enlarged—the rachitic rosary—as is also the transverse groove at the point of attachment of the diaphragm, known as Harrison's groove. The patient has a large protuberant abdomen with muscular atony, distasis of the recti, and umbilical hernia. Bad posture is noted, the legs are bowed, knees knocked, and there is relaxation of joint ligaments. Marked bony changes are shown by

X-ray. Retarded dentition may or may not be due to rachitic process, but the caries seen later in both the temporary and permanent teeth are largely influenced by rickets. The blood phosphorus is greatly reduced, having been found as low as .8 mgm. per 100 c.c. by Iverson and Lenstrup, and frequently being 50 per cent below normal, the variation corresponding with the seasonal curve, as is seen in rickets, being highest in March and reaching its lowest in June and July. Hess considers the rachitic rosary to be the most important clinical sign. Tetany is frequently associated with rickets and has a similar seasonal incidence. It is characterized by a hyper-irritability of the nervous system, which leads to convulsions in extreme cases. There is seen in this condition a diminution of the calcium content of the blood out of proportion to that of the phosphorus. Park and his associates have suggested that tetany be regarded merely as another form of rickets, one involving the calcium rather than the phosphorous metabolism. In severe tetany the convulsions become rather general and are not unlike an epileptic state. Recently such a case came under my observation, but cleared up very promptly under the administration of calcium chloride, cod liver oil, dietary regulation and ultra-violet irradiation with mercury vapor quartz light. There has been no recurrence of symptoms in this case during a period of eighteen months.

### IV.—PATHOLOGY

The accepted view today is that changes in the bone are uncalcified deposits, or improperly calcified tissue, with this in super-abundance. Although there are doubtless pathologic changes in various tissues and organs, the primary changes that are considered are in the bony structure, and are seen in those parts as indicated by the symptomatology already mentioned.

### V.—DIAGNOSIS

The diagnosis is based upon the symptoms and signs, X-ray, and laboratory findings mentioned above. It is simple in the well developed case, but requires careful examination and study in the early cases. Ofttimes the X-ray and laboratory facilities are not available, and one must rely upon the clinical findings. One should remember that breast-feeding does not exclude the possibility of a rachi-



tic condition, and that the malnutrition is not necessarily seen. Rickets is differentiated from: 1. Scurvy by the dietary history, absence of blood changes, and negative X-ray findings; 2. From syphilis, by consideration of the signs and symptoms of syphilis and blood Wassermann, and the absence of improvement under anti-rachitic therapy; 3. From Pott's disease, by placing the child on its stomach, when in rickets the curve in the back disappears, while in Pott's, the kyphosis becomes more noticeable.

#### VI.—PROGNOSIS

The majority of rickets is mild and goes unrecognized, recovery being spontaneous with favorable season and sunshine and natural intake of vitamin containing foods. The more advanced cases are slower in their course and often leave some permanent deformity, the most important of which is probably pelvic disproportions and contraction, which accounts for much dystocia with its many ills. Marked deformity of the chest may result in embarrassment of respiratory system, and is doubtless indirectly responsible for many and frequent acute respiratory infections. Indirectly, its effects are often seen to a greater or lesser degree upon the other general systems.

#### VII.—TREATMENT OR MANAGEMENT OF THESE CASES IS CLEARLY INDICATED IN THE DISCUSSION OF ITS ETIOLOGY

This is considered in two phases:

##### *Preventive*

1. This is, of course, of first importance, for, when this is properly practiced, the reference to curative treatment will be unnecessary. Preventive measures should begin with the institution of proper hygiene and diet for the expectant mother. She should have regular exposure to sunshine, and a diet general in nature, consisting particularly of foods rich in vitamins A and D.

2. Breast feeding, particularly for the first few months, followed with a diet containing vitamins A and D. Hess has shown that egg yolk offers most protection in addition to good cows' milk. Green vegetables and meats followed at proper ages.

3. Sunlight exposure as routinely as orange juice is given for its vitamin C.

4. Administration of standardized cod liver oil, in sufficient doses, that is, one-half to one

teaspoonful twice a day in children under two months, and one to two teaspoonfuls twice a day after two months. This is given throughout the year, except from May to October, when, if proper sun exposure is given, the oil is not necessary. The sun baths are begun at the third or fourth week, being given for from ten to fifteen minutes to one hour between ten A. M. and three P. M. This is supplanted by exposure under artificial light, either mercury quartz or carbon arc, during the Winter months. Infants enjoy the exposure, and as they depend upon someone for food, so do they for sunlight. The older children will naturally seek the sunny places in their play. A good tan is desirable, but care is taken to avoid burning.

5. Ultra-violet irradiation is given about three times a week with the lamp thirty-two to twenty-four inches from the body. The exposures are begun for three minute periods and increased two minutes each time, depending upon the tolerance of the individual baby, which varies greatly, until about twenty minutes are allowed, this being divided between the front and back. Reflected light has about 50 per cent of the value of direct sunshine, and should be utilized when exposure to the direct is not practical. It has been proven that body irradiation, as mentioned, liberates within the body sufficient vitamin D to prevent or cure rickets, when used together with proper dietary regulation.

6. Irradiated ergosterol, recently passed by the A. M. A. Council on Pharmacy and Chemistry and given the name of "viosterol," is the most potent source of vitamin D at our command, containing one hundred times that found in standardized cod liver oil. The recent studies of Hess and his associates have shown the proper doses of viosterol to vary from eight to ten drops a day in the normally growing infant to fifteen drops a day in premature infants, as a preventive.

##### *Curative*

In the management of an active case of rickets we have the "specifics" already referred to as preventives, which are used more intensively and in larger amounts.

1. Cod liver oil must be given in large amounts, at least a teaspoonful three times a day in an infant six months old, and larger amounts to older children. Hess has pointed

out that no danger is encountered from either cod liver oil or viosterol if not more than eight teaspoonfuls of oil or its equivalent of viosterol is given.

2. Body irradiation, either with natural sunshine exposures, or with the mercury vapor quartz or carbon arc lamp being used, the latter having no advantage over the former in suitable seasons. This treatment must be given regularly and supported by general hygienic care and appropriate dietary regime, consisting of food rich in vitamins.

3. Irradiated ergosterol is used in larger doses, separately or together, with cod liver oil, fifteen drops a day in mild cases and twenty drops a day in the more severe. In associated secondary anemia some iron preparation is administered. In the more advanced cases with deformities, such orthopedic measures as indicated are recommended.

It is hoped that this review will remind some of us who have heretofore given little attention to the prevention of this disease, of the possibilities of reducing the rachitic morbidity to a minimum by utilizing the measures established for us by the diligent workers in this field.

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## A VICIOUS CIRCLE IN THE VETERANS' BUREAU.\*

By NELSON MERCER, M. D., Richmond, Va.

This paper is presented to the members of the Medical Society of Virginia to acquaint them with conditions existing in the Veterans' Bureau scheme of hospitalization. Knowledge of these facts will enable the medical profession and the general public to unite in an effort

to remedy the unsatisfactory medical and political methods which prevail in practically all Bureau hospitals.

Although the World War ended eleven years ago this fall, thousands of ex-service men and women are applying yearly for treatment in Bureau hospitals throughout the country.

For those who have not served as doctors in Veterans' Bureau hospitals, a summary of the average experience will best illustrate what occurs therein.

A veteran who applies for hospital treatment, after numerous delays in getting his papers completed and approved, is finally authorized to enter a Bureau hospital for observation, and treatment if found necessary. In the receiving ward he experiences more delay in having a diagnosis made, and he becomes more prejudiced against Veterans' Bureau methods. When a diagnosis is made and he is sent to a certain division of the hospital for treatment of a war service disability, his hospital compensation begins, and in many cases this is more than he could make at his usual occupation. This regular monthly Federal check convinces him that the hospital is not such a bad place to stay for some time. And here he learns from his fellow beneficiaries how to remain in hospital indefinitely.

When the medical board examines him and recommends his discharge for home treatment, or as having reached the maximum improvement in hospital, he and the veteran societies frequently protest his discharge from hospital and the consequent reduction of his compensation. All the political pressure available is brought to bear to keep him in hospital, and his senators and representatives in Congress are usually most obliging in their influence to let him remain indefinitely regardless of his physical condition as determined by the medical board.

The direct result and effect of this political interference with the medical work and prestige of the Bureau doctors is most unfortunate, for the patients see that they can run the hospital to suit themselves, and this they do. The frequent antagonism of patients toward the Bureau is usually due to the long delay in getting into a hospital, and then toward the doctors in the hospitals whom they regard as bookkeepers and stenographers.

This derogatory estimation of the professional ability of the majority of Bureau doc-

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tors is founded on the endless paper work and keeping of voluminous records which are required of them and are considered as absolutely essential by the central office of the Veterans' Bureau. This system of records and paper work prevents the doctors from giving sufficient medical care to their patients, and thereby encourages the lack of confidence in the professional ability of those who are responsible for their treatment.

Another factor in the contemptuous regard of the patients for their Bureau doctors consists in the types of physicians usually found on duty in Bureau hospitals. These mainly are elderly mediocre former practitioners who are content to retire to some easy berth in their old age, and youthful recent graduates who are in the hospitals for experience. The absence of well qualified medical and surgical specialists in the hospitals is almost universal. Also, the need of adequate modern diagnostic and laboratory apparatus exists in many hospitals.

But how can we expect high grade physicians to remain in the Veterans' Bureau medical service when they must become clerks, and they are handicapped by lack of proper equipment, and their recommendations are set aside by political influence, and they are openly ridiculed by their patients?

No self-respecting physician will compromise his medical ideals and professional ability by submitting to being changed into a bookkeeper or a stenographer at the cost of his medical training, or by such insults to his medical knowledge. If the keeping of records interferes with the medical treatment of patients the records have the precedence with the Veterans' Bureau.

As a result of this system, hundreds and probably thousands are now being housed in Bureau hospitals who are able to resume some form of gainful occupation, and the innocent taxpayers are yearly paying millions of dollars for the upkeep of these hospitals, for the compensation to the patients in them, and for the salaries of employees of the Bureau. And the end is not yet in sight.

By bringing these facts to your attention and arousing your interest in this situation to the extent of effecting a remedy to improve the medical service, medical personnel, and equipment of the Veterans' Bureau, reduce the number of patients in its hospitals who are able to go home, divorce political influence from

the operation of these hospitals, and lower the prohibitive cost of running the hospitals and agencies of the Bureau, it is hoped this paper and time have not been wasted.

1100 West Franklin Street.

### PSYCHOLOGY—ITS RELATION TO THE GENERAL PRACTICE OF MEDICINE AS VIEWED AND TREATED BY A GENERAL PRACTITIONER.\*

By B. C. KEISTER, A. M., M. D., Harrisonburg, Va.

It is a well-known fact that, during the past two or three decades, we, as regular physicians, have had a larger percentage of mental and nervous diseases to treat than ever before in the history of medicine. Since the great World War, there seems to be a larger number of suicides, more divorce suits, more criminology among the better classes of our citizenry than ever before in our country.

What is the prime cause of all this? May I venture as an explanation the assertion, first, the unholy mixture of the races, and the jealousy of the nations, breeding antagonism with a yearning for conquest and war! This applies especially to Germany and France, for both of these nations carry a chip on the shoulder, as a dare and challenge. This fact I know by observation. This unfortunate attitude on the part of the leaders and pseudo-politicians of these nations is mainly due to mental aberration and false-pretense. It is a well-known fact that the World War and, I may add, the Civil War between the States, as well as a number of the foreign wars, were caused, according to history, mainly by faulty logic and unsound reasoning of the hot brains and hot blood of a few of the main leaders of these wars. Take, if you please, Napoleon Bonaparte, the world's greatest war commander, France's greatest leader—he was a victim of epilepsy, a brain disease of the most serious type, and which, at certain times, destroys the functions of all the faculties of the mind, causing premonitions and false reasoning and wandering of the mind. We may also consider Kaiser Wilhelm and many of his ancestors as mental wrecks at certain times in their lives, being classed by many under the heading of "maniac depressive psychosis," and unfit or incapable of reasoning with other nations on important questions of imperial statesmanship,

\*Read by title at the sixtieth annual meeting of the Medical Society of Virginia, Charlottesville, October 22-24, 1929.

more especially that of preventing wars with other nations.

Physical weakness and physical diseases may impair the mental faculties, giving rise to many of the minor diseases, such as hysteria, maniac depressive insanity with suicidal tendencies, addiction to liquor, morphine, cocaine, and other habit-forming drugs. Then, too, we have a weak-minded class who allow their emotions and passions for the opposite sex to prevail and control their conduct, regardless of society pride, alienation of affections, ending often in suicide or murder. These cases are classed with the maniac depressive psychoses, and are considered among the milder forms, but constitute the most common of all mental diseases, but rarely become so serious as to fit them for the asylum for the insane. Quite a large number of suicides which startle the community are due to the depressive phase of this disease, and most of the cases, where the mother, less often the father, destroys the children and herself, are of this origin. In the milder cases, the patient, without any particular cause, is melancholy, and finds voluntary action difficult, concentration of attention painful, is non-productive so far as plan and purpose are concerned, and loses all sense of pleasure in existence. Very often the disconcerting feeling of unreality appears in which life is viewed through a haze. These people are not insane, in the legal sense of the word. They carry on their work with much pain and effort, or if possible, they leave for a vacation and rest; smiles and laughter disappear from their lives. Then as inexplicably as the cloud appears, it suddenly disappears, and the patient is herself or himself again. Maniac depressive psychosis is considered the most hereditary of all mental diseases. Many cases are cited where several generations are involved.

The cyclothymic temperament, a temperament of rapid and extreme fluctuations of mood, is considered by some authors, as the basis of this disease. This temperament may be inherited from either parent. While this is true, it is certain in many cases that only one member of a family may be afflicted. There is a certain school which, rejecting the hereditary cause of this condition, falls back on the psychogenetic causes, that is emotional reactions, due to adverse circumstances and trace-

able by the psychoanalytic procedure. The heads of the psychanalytic movement say but little about this disease. Nothing at all resembling scientific proof has been adduced to establish this point of view, and the safest attitude at the present time, is to regard maniac depressive psychosis as of unknown cause. At times, however, it is strongly familial; that is, it may run in families. Most of the attacks, remarks a distinguished writer on the subject, tend toward spontaneous recovery, a fact which psychiatrists themselves sometimes overlook in the evaluation of their treatment.

#### TREATMENT OF THIS DISEASE

Many a healer has gained a great success and reputation, because his treatment of a maniac or melancholic has been attended with startling success, but this success is entirely due to the fact that his treatment was administered at the peak of the disease. The main treatment in the depressed stage consists in placing the patient in a first-class hospital or sanatorium, and selecting a first-class all round trained nurse to look after all details, keeping up the nutrition, administering only such medicines as the physician in charge directs; but one of the main things to look after is to keep the patient from his most urgent desire, to take his own life; keeping the patient occupied at some line of interesting employment which will increase his appetite, and bring about sleep. Then let nature do the rest.

#### DEMENTIA PRECOX.

Dementia precox is another mental disease of unknown cause, and also runs in families, is much more sinister and more unrelated to the experiences of life than maniac depressive psychosis. It starts early in life, often with a peculiarity of temperament, and this peculiarity becomes progressive, leading in most cases to a breakdown in personality. In this disease, we find some of the classic symptoms of insanity, such as hallucinations, delusions, breakdown of judgment and memory, its grotesque alterations of conduct, the pathetic and horrible alienation from normal human emotion and will power. Then, the mental symptomatology of dementia precox is the most varied and the most puzzling of all mental diseases. In the main, they are unsocial, and relatively inaccessible to their friends and



advisers. These odd people may continue useful and sometimes are even talented throughout their entire lives, but they stand out as potential candidates for the hospital. They often mistake phantasies for realities, and these peculiarities become so exaggerated at times, as to unfit the individual for self-sustaining community life. Thought becomes split up into delusions, images are metamorphosed into hallucinations, conduct becomes out of relation to the common ideal, and finally becomes obnoxious. The trend of phenomena is toward dementia and apathy. Such a person, sitting on a bench in a park, is utterly oblivious as to what goes on outside of him, and what goes on inside of him can only be guessed at, in our present state of knowledge. It should not be inferred from the above, that all or even the majority of odd or peculiar people are potential cases of dementia precox. What is implied here is that a disproportionate number of cases of this disease have a history of being semi-hostile, semi-shy, non-assimilated members of society. Nevertheless, there are plenty of cases arising with no such back-ground, with no gross previous peculiarity, people who have in full the current of contemporary thought and feeling, but rather suddenly start to misinterpret the life around them, and plunge with startling rapidity into a permanent, rapidly progressing psychosis. In other words, the abnormal personality from which so many of these cases start is not a cause of the disease, but a very early symptom of it.

#### NO PATHOLOGIC CAUSE FOR DEMENTIA PRECOX.

With all this grotesque and varied symptomatology, lasting often from early youth to old age and challenging the asylums of the world in a way which no other disease does, medical research has established no pathology for this apparently well-known disease. During life, the blood, the urine, the feces and spinal fluid show no constant change worth while, the X-ray reveals no lesion, and the great organs of the body seem to function quite normally in every respect. After death, the organs responsible for this disease, hide their secrets from the pathologist.

#### SOME POPULAR FALLACIES AS A CAUSE OF MENTAL DISEASE.

It is held by some writers that over-study is a cause of certain forms of mental disease. The average psychiatrist would say that an

exhausted state of the body might cause mental weakness, and would add that over-study is a bad substitute for the gorgeous realities of play and recreation. There are many abnormal mental types who are too slavish in their devotion to learning and high grading. The boy or girl who is too conscientious a student, and does not find time for the allurements of sports, any social friendships among the sexes, which is an antidote to the grind of high school and college life, lacks fundamental instincts; in other words, he is not well-balanced in desires and motives and is a potential candidate for mental disease. The excessive study thus marks a type, and in this sense a symptom and not a cause of mental disease. This is also true in business reverses. Some men break down mentally after business stresses, but usually this is a mere coincidence, and a close study of most such cases reveals other causes.

During the panic periods, there is no noticeable increase of insanity, though there are more suicides recorded. So with sex-life from frustrated love to sex perversion, yet no real proof has been adduced to show that these common happenings and habits ever wrecked the mind. It is true that abnormal people do abnormal things and generally reach abnormally to the common lot of that class of people. Thus we find that these major diseases arise on the one hand from great environmental situations, and on the other hand from causes unknown, but which for the present we link up with the indefinite terms "*Hereditary*," "*Inborn temperament*" and "*Innate constitutions*," etc.

The environmental causes bring us face to face with age-old problems, such as alcohol, venereal diseases, infection, strain and stress of life and poverty; problems, which are only in part medical, and which are entangled with social customs, diet, marriage, and the warp and woof of organized life. The non-environmental causes have been very widely discussed on the basis of a slender scientific knowledge.

#### EUGENICS.

Eugenics has sprung up as a legitimate effort of man to control mental diseases, crime, and degeneracy, but its most enthusiastic exponents have generalized beyond all reason and experience. In the obscurity which surrounds mental diseases, all nervous diseases seem to look alike to the congenital generalizer. As our knowledge grows and light comes, in-

sanity breaks up into units, each of which has a different cause and demands concentrated, individual research.

We have barely touched upon the major or more serious of the mental diseases, and will now mention some of the milder and more common mental diseases, classed as nervous diseases, such as hysteria and neurasthenia. These are considered the most common of all nervous diseases, and are classed as such. The common name for all minor mental diseases is "nervousness," and the medical name is psychoneurosis. But according to the best writers on this subject, there is no evidence whatever that the nervous system is at all involved in these conditions, neither in the spinal cord, brain or nerves, nor in any other part of the wide-spreading nervous links, which rule and adjust the body. The function of the nervous system may become impaired without any organic change in structure, but this is a somewhat mysterious and profound explanation which in the long-run means nothing.

There is nothing more mental than a bad case of insomnia, the fatigue, the fears, the brooding introspection, and the frustrated joy of the neurasthenic! There is nothing more born of the mind than the common "Phobias," the tics, the impaired consciousness of the psychasthenic and the hysteric. The manifold symptoms can all be described in terms of abnormal emotion, abnormal volitions, and abnormal ideas, even more than in the case of the major mental diseases. After all, names are important, if they do not hide the facts or create false attitudes. Clearly understanding that nervousness is a folk or common term for a variety of mental disorders of various kinds, and appreciating the fact, that psychoneurosis is a medical term which, in general, means minor mental diseases or disorders, there remains the fact that, next to the ordinary "bad-cold," the psychoneuroses are the most common of all human ills, and add heavily to the sum total of human unhappiness, and still more heavily to human exasperation. Misunderstood by his family, and their despair, the poor psychoneurotic wanders from doctor to doctor, and each specialist takes a whack at him. His tonsils are removed, his teeth extracted, his arches are supported, his back strapped, etc.

The medical profession, trained in anatomy, physiology, pathology, biochemistry, and psy-

chology, has just of late years begun to realize the great need of *psychology* in the treatment of our modern diseases, and now explains that the human is possessed not only with a liver, spleen, heart and kidneys, but has deep emotions which may be sick, has a will which may be thwarted, has curious responses to the complex life, immersing him as it were, all of which may arise from false pride and perverted habit. The writer, having skimmed the surface of this puzzling subject with the various dementias that are common in mental diseases, gives at least an idea of the various symptoms complained of by people and patients who consult first the general practitioner, secondly the mental specialist, and last and finally, the pseudo-scientific faith-healer, who offers a free pass to the Hospital of the Endless Caverns of Eternity!

NOTE:—The writer wishes to express his appreciation to Dr. C. B. Burr, author of *Physiology*, and to Dr. Abraham Myerson, author of *Practical Psychology and Mental Diseases*, from whom he has learned much and quoted liberally.

### THE CLINICAL APPROACH TO THE PROBLEM CHILD.

By HARVIE DEJ. COGHILL, M. D., Richmond, Va.  
Director and Psychiatrist, Children's Memorial Clinic.

The Children's Memorial Clinic is a community child guidance clinic for the study and treatment of the whole child. Because of this fact the clinic must present in one organization the techniques of medicine, psychiatry, psychology, and social work, and an understanding of the work in many related fields, such as education, recreation, character building and training, etc. Its staff consists of a psychiatrist, a pediatrician, two psychologists, a nurse, three psychiatric social workers, a laboratory technician, a secretary, and two clerical assistants. With this group of specialists working as a single unit, problems are studied from many different angles, and a better understanding and more adequate solution reached than is ordinarily possible when one technique alone is used.

The clinic accepts for study children under eighteen from the city of Richmond and county of Henrico, who are referred by the public, private, and parochial schools, the thirty-nine social agencies of the Richmond Community Fund, the Juvenile Court, and private physicians. The children to whom the clinic ministers come to its care because of disordered habits, troublesome personality traits, or un-



acceptable behavior. These difficulties are looked upon merely as symptoms, as the outward manifestations of underlying disturbances, which may be found, in the last analysis, in the mental, physical, or social spheres, but which are interfering with the harmonious adjustment of the child to his environment.

What are the signs which indicate that children need the help of a child guidance clinic? The list that follows covers the range of behavior signs and symptoms that have presented themselves in the cases of approximately seven thousand children who have passed through the doors of the Children's Memorial Clinic in the past five years. For convenience they are grouped:

*Group I.*—The continuance into childhood of unusual habits of infancy, such as enuresis, masturbation, peculiar food fads, night terrors, thumb-sucking, and mannerisms of various sorts.

*Group II.*—Troublesome personality traits, such as extreme degrees of sensitiveness, seclusiveness, secretiveness, apathy, day-dreaming, imaginary and fanciful lying, "nervousness," moodiness, quarrelsomeness, lack of ambition or interest, cowardliness, fretfulness, restlessness, hyper-activity, and inability to get along with other children.

*Group III.*—Undesirable behavior, such as lying, stealing, truancy, disobedience, bullying, destructiveness, cruelty, temper tantrums, defiance of or rebellion against authority, keeping late hours, seeking bad companions, and various forms of sex activity.

The clinic, in its approach to these problems, earnestly warns the parents not to give the undesirable practices or habits too much attention. It is explained that this does not mean that they should be ignored but that one should endeavor to lead the child away from them gradually with no emotional display. It is further explained that most people at some time or other have had one or more of these habits or traits, and that, through intelligent guidance, without too much direction, the habits have disappeared. If the importance of the child's behavior is exaggerated, if there is too much emotional display, it serves only to keep the child and his problem in the center of the stage, much to his detriment. It is especially stressed that one should keep hands off, in so far as possible, while the clinic

searches for the underlying causes of the child's behavior.

As the physical being is the basis of existence, the child is first studied by the pediatrician. A thorough physical examination is supplemented by laboratory tests, including blood Wassermann, blood count, urinalysis, etc. Next, the child is seen by the psychologist who gives various tests to measure his intellectual development in comparison to that of other children of his age, to discover special abilities and disabilities, and to measure his educational achievement. A complete social history is obtained by one of the psychiatric social workers who interviews the parents, teachers, and others who know the child. Her object is to obtain not only factual information concerning the family history and all phases of the child's own life history, but to study the interplay of personalities in the groups to which the child belongs, and to study his conduct and personality traits as they appear in various situations and are interpreted by various people.

Before the psychiatrist sees the child he has already absorbed the reports from pediatrician, laboratory technician, psychologist, and social worker. In the light of the social history the psychiatrist attempts to discover the child's attitude toward himself, his various reactions to the family situations, and to the school and community situations. The psychiatrist learns how conscious the child is of his difficulties, what he considers to be his main trouble, upon whom he places the responsibility, how he feels about his own weaknesses and failures, and what needs he is trying to satisfy by his behavior. The child is induced to talk about his play habits, other interests, gang life, fears, and emotional conflicts; about the interplay of personalities in the home, etc.

The following illustrations show how the clinic is able to help children referred because of one or more of the problems mentioned above: Johnny, at 5 years of age, masturbated. His mother, instead of having him examined by the family physician to determine whether or not there might be a physical cause, such as irritation, constipation, intestinal parasites, local adhesions, or other abnormalities, told him that such practices would make him crazy, and that God would punish him. His mother had had in her early life unpleasant associations with sex, and when her little boy began

to ask questions about sex, she was very much shocked. She evaded his questions. Later, when he was ten years of age, he was referred to the clinic by a pediatrician because of numerous somatic complaints with no apparent physical basis. He told the psychiatrist that he had committed the unpardonable sin. God was punishing him by causing him to become nauseated. Every time he vomited it was an additional proof of God's anger. During the course of several interviews with the psychiatrist the child's story came out. He was in a terrific jam about sex, with his early experiences as the apparent basis. After several therapeutic talks, during which he was freed of his feelings of guilt, he began to retain his food and now seems to be entirely rid of other unhealthy symptoms, apparently reacting as a happy, normal boy.

Masturbation is the bugbear of many parents. They allow undue fears and anxiety to sway them and cause them to give the habit more weight than it deserves. Any child guidance clinic could give many case histories which show that dangers to the physical and mental well-being of the child are more apt to come from the parent's own attitude and unwise treatment than from the habit itself, and in this conclusion, our opinion would be supported by records of hospitals for the mental and nervous. We do not know of insanity or feeble-mindedness being caused by masturbation, but we do know of neuroses developing as a result of unwise parental attitudes on the subject. The important thing to remember in this connection seems to be that masturbation, like enuresis, is an undesirable habit in itself, but that the real harm to the child comes from his mental attitude toward the problem.

We tell mothers to stop blaming or punishing their children for masturbating, bed-wetting or other allied infantile habits, such as thumb-sucking, rectal irritation, or rubbing of the navel. This is the first step in treatment. Most parents take these problems in a very personal way, resulting in much emotional turmoil. This sometimes defeats the purpose. Some children get satisfaction out of knowing a simple way to agitate the parent; and the parent who becomes so easily agitated is the loser in dealing with the child. The child may persist in the habit because of the attention he gets, if for no other reason. The habit or practice should be treated unemotionally. The in-

troduction of new interests and play with other children helps. Often the habit is deep-seated and it may be a symptom of an underlying emotional condition which should be treated by extensive psychotherapy.

The clinic is called upon for advice in many other types of problems. Robert, aged nine, was referred by the school with the complaint that he was failing the fourth grade, was slovenly in speech and dress, kept his mouth open all the time, and was entirely lacking in a sense of order. His parents wondered if this behavior indicated that Robert was feeble-minded. They were soon reassured on this point. The psychologist reported a mental age of eleven years, which indicated a superior intelligence and the ability to do fifth grade work. The pediatrician attributed his mouth-breathing to hypertrophied tonsils and adenoids. The psychiatric social worker interviewed the parents, made observations in regard to environmental factors, and studied the inter-play of personalities of various members of the family group, all of which may be factors in the problem.

During the psychiatric interview, Robert showed signs of nervous tension, said he was not happy at home, and felt that his parents did not love him. He gave numerous reasons for his feeling of insecurity, the chief one being that they criticized him so much and openly disapproved of him in many ways. The mother, during her interviews with the social worker, had proved herself to be a nervous, tense individual, who openly nagged the child, telling him repeatedly, "Shut your mouth" (even after the physical basis of this behavior was reported to her). The mother said that the father had no sense of order, yet he expected the child to be neat and orderly. It was noted that the father had the same type of speech defect for which he was criticizing the child. When these things were explained to the parents in a series of interviews, there was a change in their attitude toward the child. This eventually resulted in a change of the child's attitude toward his school work. Months have elapsed and Robert has been promoted in school, and now appears well adjusted there and at home.

Polly's mother brought her to the clinic with the complaint that the child was disobedient. As a result of the psychiatric social worker's interview with the child's parents and the psychiatrist's interview with the child, it de-



veloped that Polly's mother was in the habit of making promises to the child which were never kept. The mother was very talkative and would pour out an endless stream of commands at the child, many of which she did not mean. The child had become "mother-deaf." The mother was not careful to gain the child's attention before telling her what to do. The child, busy with her play, frequently did not know her mother was addressing her. The mother would allow the child to do a thing one day and punish her for doing it the next day. She would promise a reward if the child obeyed. Sometimes the child would get it, but as a rule the promise would not be kept. The mother, when angry, would make the child obey needless commands for the sake of proving her authority. The mother was told that her example should be clean cut and square; that she should take care to see that the child actually understood each time just what she wanted. It was pointed out to her that she should not interrupt an activity important to the child for a matter trivial to the mother; that in so far as possible, time should be given the child to finish an activity and warning given ahead of time. A change in her method of handling the child resulted in a marked improvement.

Carl, a fourteen-year-old boy, was referred by the Juvenile Court. He had a history of truancy, petty stealing, and finally a charge of house-breaking that brought him into court for a third time. The social worker studied the family situation and found that Carl's parents wished him to take a classical course and enter a profession. The boy, however, told the psychiatrist that he wanted to be a machinist, which was more in keeping with his intelligence and the fact that he had marked mechanical ability. It was recommended that instead of sending the boy to a reformatory he be allowed to return home on probation, but that there should be a re-arrangement of his study course at school, the emphasis being placed on manual training rather than the classics. The parents reluctantly gave up their dreams of a profession for the boy and have co-operated in the plan of treatment. Today, two years after the boy's court appearance he is happy in his school work, has a part-time job in which he makes use of the knowledge acquired in school, and is apparently happy in his home relationships. When he completes his school

training, which is now largely shop work, he will be well equipped to take a job in a machine shop at a good wage.

To get at the root of such difficulties as described above usually involves giving more time and thought to the problems than the average practitioner or pediatrician with a busy practice can afford. Then is the time to call upon the child guidance clinic for help. The child guidance clinic not only offers help for parents and children, but it also brings to the aid of practitioners and all those who are interested in the physical or mental welfare of children a service which should help solve some of their most acute problems. It does not compete with the medical profession in any way. No children are received for study or treatment at the Children's Memorial Clinic except those who are referred by physicians or the agencies which support the clinic. Its justification lies in its capacity to give those interested in children a fuller picture of all that children are, think, and feel, and its ability to make them conscious of the whole child and the whole situation. Treatment means working out with parents new methods of child training; with schools, modification of teaching practices to meet individual needs; with social agencies, case-work techniques that will penetrate to the core of the difficulty; with physicians, new techniques of therapy. It can furnish to the community new data and fresh points of view, but the value of these can be proved only as they are absorbed and applied to reach all children.

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### NEURO-PSYCHIATRIC MANIFESTATIONS OF PUBERTY.

By ALFRED GORDON, M. D., Philadelphia, Penn.

Adolescence presents an active developmental period. It is the time of great physical and mental stress. New traits, sex interests, and new sentiments make their appearance. The brain is more active in circulation and metabolism. We have reasons to believe that the ductless glands which influence greatly the autonomic nervous system, and, therefore, the sympathetic, play normally a certain rôle in changes of disposition, mood, and, consequently, of conduct and behavior. During puberty these glands, by reason of a very active circulation, are more apt to modify the mode of feeling, and, therefore, of acting. Adolescence is a critical period of life; the coming man or

woman cannot readily abandon the traits of the passing childhood. There is naturally a struggle. Natural tendencies are now more in evidence; they may become perverted, exalted, abolished, according to whether the combat between the infantile forces and the new requirements end in favor of one or the other. It is at this period of life when mind either reaches a new development or succumbs under the new intolerable burden. Frequently this great physiological crisis precipitates mental and nervous disorders, if the predisposition is neuropathic. In a normal condition we frequently witness a very manifest change of character; the individual may become reserved or authoritative. There may be euphorism or depression.

From a practical standpoint the chief feature of the crisis in puberty is the continuous endeavor on the part of the adolescent to adjust oneself to the new physiological and psychic forces. Should the adjustment fail, neuroses and psychoses will ensue.

Hysteria with all its physical and mental characteristics—obsessions, phobias, aboulias, hypochondriasis, anxiety, neuroses, tics, spasms—all are morbid manifestations to which an adolescent is particularly predisposed by reason of the above-mentioned peculiarities. In other words, functional nervous disorders which are psychogenetic in origin, character and evolution, find a large and a fertile soil during a period of life when feelings, emotions, or affects in general are especially mobile, and, consequently, exercise a greater influence on behavior, conduct, activities, and formation of character.

Installation of puberty is one of the most potent factors which facilitate the formation not only of neuroses but also of psychoses. Dementia praecox occupies the most conspicuous place among all. Periods of exaltation alternating with periods of depression, known under the name of cyclothymia (in a mild form) or manic-depressive insanity (in a pronounced form); is another affection not infrequently encountered in adolescence. The process of development of puberty, with its stormy changes in psychic life occurring at that period, contributes to those psychoses a special mask, character, and color.

Besides the study of specific nervous and mental disorders, there is another problem of greater magnitude which deserves our atten-

tion. It is the problem of mental deficiency which acquires a special importance from the standpoint of puberty. If this special developmental period of life is associated with important physiological and psychic changes; if sentiments, tendencies, penchants and all sorts of traits are particularly disturbed during the period of the struggle between the infantile and juvenile forces; finally, if adjustment of the former to the latter is the principal, if not the only aim, during puberal evolution,—by reason of these circumstances, a mental defect will naturally show a total disability and succumb under the tremendous burden. The result will be approximately as follows: Obtuseness of moral conscience; no struggle against passions; violent impulses; no judgment; no will; ego accentuated; intolerance; strong degree of envy and jealousy; bigoted hatred; cruelty; sexuality to a pronounced degree; finally, criminality in all its forms.

Criminality, as an essential characteristic tendency of mental defectives, is one of the most important problems confronting us. Statistical studies show strikingly the effect of mental deficiency during the adolescent period of life. According to the Bureau of Education in Washington, 20 per cent leave school at puberty because of an inherent mental inability to advance. Petty and serious crimes committed by this large army of juvenile delinquents are a matter of common knowledge.

The brief survey of nervous and mental manifestations during the developmental period of puberty in normal and defective individuals leads us logically to a consideration of an outline of therapeutic and prophylactic conduct. It is obvious, of course, that intense attention to this important problem is indicated during childhood, long before the serious physiological crisis commences to develop. All our efforts must be directed towards preparing the child for that important period of life in order to enable it to meet the great conflict between various forces. The preparation must be, first of all, physical, with its normal physiological requirements; next affective, viz., all pertaining to the emotional side of the child's life. Two elements must be borne in mind; inherited constitution and influence from without.

In bad heredity, the child must be placed under favorable conditions: good nutrition; reasonable exercises; no overstrain; train re-



sistance in case of pain and discomfort; control strong passions; train to overcome anger and worry; cultivate elevating emotions, such as hope, joy, expectations, love; they are all constructive, and must be specially insisted on. On the contrary, depressive emotions, such as despair, sorrow, are damaging to the nervous system. Joy of work compels concentration of attention. Idleness leads to nervousness. Regular systematic work is wholesome. To solve the problem of the nervous child, medicine, psychology, and pedagogy must be concerned.

The greatest therapeutic management should be undertaken in childhood and should be pre-eminently prophylactic. One must fight against undesirable predisposing factors which govern the destiny of the future man or woman. To strengthen the psychic forces is one of the most important measures in the course of preparation of child for the adolescent period.

1812 Spruce Street.

## Correspondence

### State Mental Hygiene Program.

RICHMOND, VA.,  
JANUARY 16, 1930.

TO THE READERS OF THE MONTHLY:

In a paper on a "State Mental Hygiene Program," which I read last October at the meeting of the Medical Society of Virginia, and which was published in the December VIRGINIA MEDICAL MONTHLY, I said that such a program should have a medical background. A movement of the kind should unquestionably be led and guided by trained medical men and women.

The special purpose of this letter, therefore, is to further interest you in mental hygiene in this State. In conference with Frank Bane, Commissioner of Public Welfare; Dr. J. K. Hall, member of the General Board of the State Hospitals and Consultant Psychiatrist to the Department of Public Welfare, and also others connected with the Department, and after consulting with Dr. Charles R. Grandy, President of the State Medical Society, Dr. J. Allison Hodges, President-elect and chairman of the Department of Clinical Education of the Medical Society, and other members of the Society, it is the consensus of opinion that a small group of well qualified persons, particularly physicians, to con-

stitute a committee on information, would very materially aid in promoting mental hygiene and psychiatry in the State. This group would consist of a few outstanding individuals whose interest and services bring them in contact with mental hygiene and psychiatric problems. The members of this committee would act as advisers and sponsors, so to speak, for the Bureau of Mental Hygiene, and aid in the dissemination of authentic information to the profession and the public relative to causes and prevention of mental illness and mental defect; they would, from time to time, at their convenience, present before the medical profession and the public, through addresses, papers, and publications, material that would further, on a sound basis, the various phases of mental hygiene. They would promote the establishment and development of neuro-psychiatric and mental hygiene clinics as part of an educational, prevention and treatment program, cooperating with the plans and purposes of the Medical Society of Virginia.

Let me call your attention to a news item in the January VIRGINIA MEDICAL MONTHLY with reference to the efforts we are making to establish a small though useful library at the headquarters of the Bureau of Mental Hygiene. Please send us any contributions that you may have made or may hereafter make, to the literature in the field in which we are especially interested.

We would be glad to give you any references that we may have to literature in the mental hygiene field; and any members of the profession or others especially interested may at any time use our library, but it would be impracticable to permit material to be sent from the library.

Fraternally yours,

WILLIAM F. DREWRY, M. D.,  
*Director Bureau of Mental Hygiene.*

### GETTING OUT THE JOURNAL

Getting out this JOURNAL is no picnic.

If we print jokes, folks say we are silly.

If we don't they say we are too serious.

If we publish original matter, they say we lack variety.

If we publish things from other journals, we are too lazy to write.

If we don't print contributions, we don't show proper appreciation.

If we do print them, the paper is filled with junk.

Like as not some fellow will say we swiped this from another journal.

And we did.

# Department of Clinical Education

## OF THE MEDICAL SOCIETY OF VIRGINIA

### Extension Work in Graduate Education.

The preparatory work for these courses is still continuing steadily and encouragingly. The constructive efforts recently being made by the department for initiating clinical teaching throughout the State to the members of the State Society, and to begin next Spring, will be completed at the meeting of the department on the night of February 1st, at the Commonwealth Club in Richmond. The full program cannot be given this month, but will be published in the March issue.

At first, the work will be limited to the clinical exhibits of the various hospitals in each Councilor district on certain specified weekly dates, and later, certain of these hospitals will be chosen by adjacent component societies, and more extended clinical meetings arranged according to specially advertised programs.

When assistance of any kind is desired by the local committees in charge, the Department of Clinical Education will be glad to co-operate to the full extent of its ability. It will assist in advertising the meetings, in furnishing clinical lecturers on subjects requested and in any further way the committees may desire.

The dates, local arrangements, etc., must be decided upon and, when these are definitely arranged, and the department is advised in advance, its services will be at their disposal.

All of this will require that not only the locally interested societies must encourage this movement, but that a number of local physicians individually and personally must show their interest in their fellow members, by initiating and "putting over" these clinical opportunities, for it is true in Medicine, as in all business, that "upon a few, the burthen of progress doth fall."

The need to keep all of our members "up-to-date" in the progressive methods of the present is urged, and the all-sufficient reward is the continuing advancement of our profession.

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### ADDITIONAL CO-OPERATION.

Since our last issue, this department has received assurance from Mr. Frank Bane,

Commissioner of Public Welfare of the State, that he is "more than interested" in this program of Clinical Education, and has proposed a conference at a near date which, if favorably concluded, will afford the physicians of the State the opportunity of utilizing for clinical purposes more than 7,000 cases in the State institutions that never before have been available for clinical study by the profession as a whole. This vast and varied wealth of clinical cases of all kinds, when available, will be of the greatest advantage to all concerned, and will ultimately benefit reflexly the science of medicine and the Commonwealth of Virginia, and it will, in addition, forge and fuse the ties of co-operative effort for professional progress. Before the next issue of this JOURNAL is published, it is believed that the first of these great clinical meetings in one of our State institutions will be held, but all Southside physicians will be informed in ample time to attend.

Likewise, this department has been much pleased and encouraged by a personal letter from Hon. Harry F. Byrd, in the closing days of his brilliant regime, in which, before vacating his office as Governor, he took occasion to write: "The program appeals to me strongly, and I also will be glad to aid in any way I can."

Many personal assurances of co-operative assistance were also received by the officials of the State Society, who appeared by invitation before the recent Public Health Association of Virginia, at its annual meeting, in Richmond.

Dr. W. F. Drewry, Director of the Bureau of Mental Hygiene, has also informed this department of his earnest desire to co-operate personally, and through his staff, in any way desired, in assisting at these clinical meetings and aiding physicians of the State, who may have "problem" cases for study or diagnosis.

Surely such commendation and pledges of assistance from such sources should stir our members and component societies to offer, through these columns, their co-operation and services, for, practically, the one means the other, and together, both spell success.



This department advocates and encourages the "acorn" method of planting a germ-nucelus, and letting it grow, for every co-operative method, however small, it is confidently believed, will aid in building the structure for continuous medical education.

The degree of co-operation will determine the measure of success.

#### CORRESPONDENCE.

The extracts printed below are from letters received from members of the State Medical Society, who have benefited themselves and others by organized methods for the study of local clinical cases:

#### *Extracts from Dr. Bowyer's Letter of October 2, 1929.*

. . . Being Councilor for the State Society, two years ago I organized the Clinch Valley Medical Society, comprising the seven counties, Dickenson, Buchanan, Russell, Tazewell, Scott, Lee and Wise. I invited a group of five doctors to lecture before the Society on Medicine, Surgery, Children, Obstetrics, Preventive Medicine and Public Health Work. The doctors in this section were well pleased with such a program, as they considered it a short post-graduate course. The Clinch Valley Society meets twice a year. We have had four meetings since our organization. The Society is growing. We have been able to get the doctors from the rural locations together, and they insist on the continuation of such a program . . .

Our Society has a membership of only fifty-one members. Thirty-seven of these were present, and took an active part in the discussion of all the lectures.

#### *Extracts from Dr. A. T. Finch's Letter of October 6, 1929.*

. . . I believe if you could have a series of Diagnostic Clinics in each county in conjunction with the County Medical Societies, it would prove interesting, helpful, and would stimulate the rather sleepy county Societies. We need badly to have more active county Societies, that will work and function and meet. This will educate each member, and bring him out, but so few feel it. We have struggled here for ten years, and a few of us have kept it up. We have had during the past year,

more interest and more local papers, and an attendance of all of the doctors in the county on two occasions.

#### *Extracts from Dr. A. T. Finch's letter of November 30, 1929.*

. . . I think the Correspondence Courses should be a course of reading on certain lines, and then questions sent out. The U. S. Army does this in its Medical Department, and they are instructive and helpful, and I do not see why the Medical Society and Health Department and Colleges could not do a wonderful work in this line that will cement the Society and will uplift the men and be a great improvement to them, and when capped with the clinic demonstrations and lectures and papers at certain times and places, as now planned, we would really accomplish something.

I am a member of a group of twenty-five doctors who are pursuing this work in a private clinic in another city, and we arrange once a year to secure outstanding men to come one day each, and we remain a week. . . . This has worked well for three years, and has been a source of information and inspiration to us who have taken the work.

#### *Extracts from Dr. W. H. Venable's Letter of November 22, 1929.*

. . . Several weeks ago, I held a two days' clinic for colored doctors, and twelve came. They expressed great appreciation, and I am sure were much benefited. Two who were not able to attend the clinic, came at a later date, and made rounds with the staff, and watched the technic of artificial pneumothorax.

Would not other hospitals be willing to extend like privileges to the doctors in Virginia?

#### LIST OF HOSPITALS IN VIRGINIA (Except State Institutions)

*Compiled from the American Medical Directory  
(Eleventh Edition)*

(Figures at beginning of line indicate number of beds.)

#### FIRST DISTRICT

- Councilor, Dr. R. D. Bates, Newtown, Va.
- 75 Martha Washington Hospital, Fredericksburg, Va.
- 65 Hampton Training School for Nurses and Dixie Hospital, Hampton, Va.
- 45 Northampton-Accomac Memorial Hospital, Nasawadox, Va.
- 90 Elizabeth Buxton Hospital, Newport News, Va.
- 68 Riverside Hospital, Newport News, Va.
- 20 Whittaker Memorial Hospital (colored), Newport News, Va.

## SECOND DISTRICT

Councilor, Dr. E. C. S. Taliaferro, Med. Arts Bldg., Norfolk, Va.

- 228 St. Vincent's Hospital, Norfolk, Va.
- 50 Mt. Sinai Hospital, Norfolk, Va.
- 150 Protestant Hospital, Norfolk, Va.
- 70 Sarah Leigh Hospital, Norfolk, Va.
- 68 King's Daughters' Hospital, Portsmouth, Va.
- 40 Parrish Memorial Hospital, Portsmouth, Va.
- 60 Lakeview Hospital, Suffolk, Va.
- 16 Virginia General Hospital, Suffolk, Va.

## THIRD DISTRICT

Councilor, Dr. Roshier W. Miller, 2401 North Ave., Richmond, Va.

- 424 Medical College of Va. Hospitals, Richmond, Va.
- 50 Grace Hospital, Richmond, Va.
- 82 Johnston-Willis Hospital, Richmond, Va.
- 90 Retreat for the Sick, Richmond, Va.
- 50 St. Elizabeth's Hospital, Richmond, Va.
- 81 St. Luke's Hospital, Richmond, Va.
- 84 Sheltering Arms Hospital, Richmond, Va.
- 35 Southern Orthopedic Hospital, Richmond, Va.
- 100 Stuart Circle Hospital, Richmond, Va.
- 50 Tucker Sanatorium, Richmond, Va.
- 150 Westbrook Sanatorium, Richmond, Va.
- 30 Jones Memorial Hospital (colored), Richmond, Va.

## FOURTH DISTRICT

Councilor, Dr. Wright Clarkson, Petersburg, Va.

- 26 Chase City Hospital, Chase City, Va.
- 48 Southside Community Hospital, Farmville, Va.
- 30 Hopewell Hospital, Hopewell, Va.
- 24 Loulie Taylor Letcher Memorial Hospital (colored), Lawrenceville, Va.
- 70 Petersburg Hospital, Petersburg, Va.
- 20 Kendig Bros. Hospital, Victoria, Va.
- 20 Raiford Hospital, Franklin, Va.

## FIFTH DISTRICT

Councilor, Dr. J. M. Shackelford, Martinsville, Va.

- 100 Memorial Hospital, Danville, Va.
- 40 Providence Hospital (colored), Danville, Va.
- 30 Galax Hospital, Galax, Va.
- 54 Shackelford Hospital, Martinsville, Va.
- 20 Halcyon Hospital, South Boston, Va.
- 24 South Boston Hospital, South Boston, Va.
- 15 Dr. Akers' Hospital, Stuart, Va.

## SIXTH DISTRICT

Councilor, Dr. R. A. Bennett, Bedford, Va.

- 25 New Altamont Hospital, Christiansburg, Va.
- 14 Floyd Hospital, Floyd, Va.
- 75 Lynchburg General Hospital, Lynchburg, Va.
- 75 Marshall Lodge Hospital, Lynchburg, Va.
- 102 Virginia Baptist Hospital, Lynchburg, Va.
- 45 St. Alban's Hospital, Radford, Va.
- 44 Burrell Memorial Hospital (colored), Roanoke, Va.
- 20 Gill Memorial Hospital, Roanoke, Va.
- 100 Jefferson Hospital, Roanoke, Va.
- 59 Lewis Gale Hospital, Roanoke, Va.
- 97 Roanoke Hospital, Roanoke, Va.
- 35 St. Charles Hospital, Roanoke, Va.
- 50 Shenandoah Hospital, Roanoke, Va.
- 65 Mt. Regis Sanatorium, Salem, Va.
- 12 Mathieson Hospital, Saltville, Va.

## SEVENTH DISTRICT

Councilor, Dr. Percy Harris, Scottsville, Va.

- 50 Martha Jefferson Hospital, Charlottesville, Va.

- 10 Page Memorial Hospital, Luray, Va.
- 69 Winchester Memorial Hospital, Winchester, Va.
- 102 Rockingham Memorial Hospital, Harrisonburg, Va.

## EIGHTH DISTRICT

Councilor, Dr. J. E. Knight, Catlett, Va.

- 50 Alexandria Hospital, Alexandria, Va.
- 30 Loudoun Hospital, Leesburg, Va.
- 25 Fauquier County Hospital, Warrenton, Va.

## NINTH DISTRICT

Councilor, Dr. C. B. Bowyer, Stonega, Va.

- 53 Geo. Ben Johnston Memorial Hospital, Abingdon, Va.
- 20 Appalachia Masonic Hospital, Appalachia, Va.
- 50 King's Mountain Memorial Hospital, Bristol, Va.
- 12 Sutherland's Hospital, Clintwood, Va.
- 20 Clinchfield Hospital, Dante, Va.
- 14 St. Ann's Hospital, Lebanon, Va.
- 30 Norton Hospital, Norton, Va.
- 20 St. Elizabeth's Hospital, Pearisburg, Va.
- 35 Pulaski Hospital, Pulaski, Va.
- 30 Mattie Williams Hospital, Richlands, Va.
- 18 Stonega Hospital, Stonega, Va.
- 15 Toms Creek Hospital, Toms Creek, Va.

## TENTH DISTRICT

Councilor, Dr. J. F. Fulton, Staunton, Va.

- 105 Chesapeake & Ohio Hospital, Clifton Forge, Va.
- 18 Community Hospital, Hot Springs, Va.
- 46 Stonewall Jackson Memorial Hospital, Lexington, Va.
- 12 D. J. Carroll Memorial Hospital, Schuyler, Va.
- 65 King's Daughters' Hospital, Staunton, Va.

## COMPLIMENTARY

In appreciation of the assistance rendered this department by the profession of the State, a pamphlet containing the best summary we have seen as to deductions, instructions, etc., regarding "The Physicians' Income Tax," has been mailed to each member of the Society with the compliments of the Department of Clinical Education.

This pamphlet is a reprint by courtesy, from the *Journal of the A. M. A.*, of recent date, and it is hoped will prove of informative and practical value to our members.

## INFORMATION

All members of the State Society are requested to write for any information desired on any subject relative to these Extension Courses in Graduate Medical Education, either to the Acting Executive Secretary, Mr. George W. Eutsler, P. O. Box 707, University, Virginia, or to the Chairman of the Department of Clinical Education, 5 East Franklin Street, Richmond, Virginia.



# President's Message

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In a recent address made before the Virginia Public Health Association, I presented two ideals which have had a profound influence on my professional career, and should have a similar influence on every medical man. One of these was the desire to increase the efficiency and prestige of the Medical Profession. Every medical society, consciously or unconsciously, must have this for its program, and its members tacitly expect this service from their societies. The question is how far is the Medical Society of Virginia able to carry out this program.

A state medical society only comes into actual contact with its members at the time of its annual meeting; indeed this was the only contact between the Medical Society of Virginia and its members under its old plan of operation, for we had then no magazine and no component societies. It really only furnished us an opportunity for an annual social gathering, where scientific papers could be read with more or less benefit to our membership at large. Outside of the one week of our meeting the Medical Society of Virginia hardly touched the lives of its members. This state of affairs was probably all that was necessary under our former individualistic manner of living, when first each family and then each community was sufficient unto itself. But our whole country has changed and Virginia has changed with it. Our roads and automobiles have brought us close together and it is no longer necessary for our people to patronize their home communities to fill their needs. We all want more and better things and we are all willing to go further to get them, even though we really have not the money to pay for them. Our people have indeed been educated to demanding as necessities things which a few years ago they considered luxuries, and with this education has come unrest and dissatisfaction with things formerly accepted as all they should be. People are combining on every side to obtain what they want and the individual can scarcely compete against these combinations. It is perfectly patent that the individual doctor will often need help under present conditions, but a medical society which only touches him one week a year is not in a position to render him much assistance.

The plan of organization adopted by the American Medical Association furnishes the means of organizing the Medical Profession so that it may be able to keep up its efficiency and prestige. The Medical Society of Virginia

adopted this plan in part several years ago, and has since then gradually drawn nearer the plan as used in other states. The basis of this plan is the formation of local societies bound together into a state association, which will be able to correlate and guide the whole. Without the active local societies the state society has but little influence as it is too far off from its individual members. The county societies in Virginia vary very greatly in efficiency. We have some of these societies that meet once a week or once a fortnight and are thus in constant contact with their members. In these localities the efficiency and prestige of the profession is at its highest. There are, however, other county societies, which, although chartered, scarcely ever meet. They do not even elect officers, or delegates to the Medical Society of Virginia. They have little if any influence on the individual members who, left to themselves, have a hard struggle to keep up their prestige in the community and lose their efficiency, which needs personal contact and stimulation which can be only gotten by hearing of the work done by others. Besides this, there are fourteen counties in the State of Virginia which do not even pretend to have an organization.

It is the duty of the Councilors to establish and keep up the local organizations. They cannot, however, do so unless the physicians practicing in the various counties feel that this is worth while. They must, however, realize that unless they are willing to cooperate they will not be able to keep up their prestige, which is now more than ever necessary as the lay-press and certain organizations are even now attacking us and threatening to displace the individual doctors with State Controlled Medicine, one of whose main purposes is to reduce the cost of medical attention by reducing the doctor's pay.

The Medical Society of Virginia through its Department of Clinical Education desires to give a chance to bring up their standards to those of our members who on account of location are not given professional contacts to keep up their efficiency. It hopes to bring clinics to the neighborhood of the doctors, but it will not be able to furnish them for the benefit of one or two members. It will first be necessary to get a group of members who are ready and anxious to have such a clinic, which group is best furnished by a county medical society, which will be able to guarantee a good attendance on the clinics, and fur-

nish the needed patients. At the beginning, the State Society will only furnish a clinic through such an organized local society.

I therefore beg the Profession in those localities which have no active county or district society to promptly get one into existence so that the State Society may be able to furnish them the material for increasing their efficiency, as well as the guidance which will increase their prestige.

CHARLES R. GRANDY, M. D.,  
*President, Medical Society of Virginia.*

## Proceedings of Societies

### The Mid-Tidewater Medical Society

Met at the Citizens Exchange Bank, West Point, Virginia, at noon Tuesday, January 28th, with its president, Dr. Horace Hoskins, of Saluda, presiding.

At the regular business session, the program being inaugurated by the Medical Society of Virginia to afford clinical instruction to the country doctors was heartily endorsed and the State Society was so instructed through its representative, Dr. R. D. Bates, Councilor. A resolution was also offered and adopted requesting that our territory be given equal rights in the distribution of aid to indigent patients and that a copy of the resolution be presented to the respective legislators representing the counties.

At the afternoon session papers were presented by Dr. J. S. Horsley, Richmond, on the Modern Treatment of Burns, in which he brought out the desirability of not using ointments and other obnoxious substance in the home treatment, as it served as a handicap later, and advocated the open air and tannic acid treatment. Dr. A. I. Dodson, also of Richmond, presented a paper on Ureteral Calculi and Treatment. Both of the papers were simple and practical, and made more interesting with lantern slides.

Among those present were the guests, Drs. Horsley, Dodson and J. P. Williams, of Richmond, and Drs. Bates, Hoskins, Campbell, Cox, Latane, Buckingham, Croxton and Harris, members of the society.

The meeting adjourned to meet April 22, at Mathews C. H.

M. H. HARRIS, *Secretary.*

### The Fauquier County Medical Society

Was entertained by Drs. J. E. Knight and M. B. Hiden, on January 30th, at Warrenton, Va., with Dr. W. G. Trow presiding. Dr.

M. B. Hiden spoke on the doctor in community activities and in politics and urged the physicians to build up their political influence and that of the medical societies. Dr. W. LeRoy Dunn, of the Virginia State Board of Health, gave an excellent talk on the Tuberculosis Clinics that are being held in that county and other counties of the State. His talk was discussed by Drs. J. E. Knight and J. T. Sprague. Dr. W. O. Bailey made a very instructive and most interesting talk on the work and program of the Loudoun County Medical Society. A committee of that society had carried through an investigation to promote the efficiency of, and to prevent infringement against, the members of the Loudoun County Medical Society. Dr. Bailey showed the great similarity between Loudoun and Fauquier counties. His talk was discussed by Dr. J. T. Sprague, who moved that Fauquier raise her medical fees by adopting the Loudoun schedule. This motion was adopted.

A delicious supper was served by Dr. and Mrs. Knight and Dr. Hiden, and a pleasant social hour enjoyed.

### The Patrick-Henry Medical Society

Held its regular quarterly meeting in Martinsville, Va., January the 9th, under the presidency of Dr. W. C. Akers, of Stuart. Dr. W. N. Thompson, of Stuart, was elected secretary-treasurer, to fill the vacancy caused by the removal from the county of Dr. C. G. Bennett, former secretary-treasurer. Drs. C. W. Thomas and E. M. McDaniel, both of Martinsville, were unanimously elected to membership. Plans for the activities of the year were outlined by the president and Drs. John Shackelford, H. G. Hammond and G. B. Dudley were appointed to prepare papers for the next meeting of the Society. Following the business session, Dr. W. N. Thompson presented a paper on "The Difficulties in the Diagnosis of Anemia, with a Case Report." A general discussion of this paper by the members followed. The next regular meeting of this society will be held April 3, 1930.

### The Elizabeth City County Medical Society

Held a meeting on the night of January 27th, at which time Dr. George K. Vander-slice, of Phoebus, read a paper on "Varicose Veins." This meeting was attended by doctors from Hampton, Fort Monroe, Langley Field, and the National Soldiers Home. Dr. Paul J. Parker, Hampton, is president of the



society, and Dr. William H. Howard, also of Hampton, is secretary.

#### **The Alexandria Medical Society,**

At its January meeting, elected the following officers for 1930: President, Dr. R. L. Wilkins; vice-president, Dr. O. A. Ryder; secretary-treasurer, Dr. Peter B. Pulman (re-elected). All officers are of Alexandria, Va.

#### **The Albemarle County Medical Society,**

At its regular meeting held at the University of Virginia on January the 9th, elected the following officers for the ensuing year: President, Dr. D. C. Smith, University; vice-president, Dr. W. W. Waddell, University; secretary-treasurer, Dr. A. D. Hart, Charlottesville.

#### **The Lynchburg and Campbell County Medical Society,**

At a recent meeting, elected Dr. Robert P. Kelly president for the year 1930. Dr. Don P. Peters was elected vice-president, and Dr. Charles P. M. Sheffey, secretary-treasurer. All officers are of Lynchburg.

#### **The University of Virginia Medical Society**

Met on January 13, 1930, in the new Medical Building at the University. The meeting was called to order by the President, Dr. Edwin P. Lehman. A typical case of alcoholic paranoia was presented by Dr. D. C. Wilson and discussion was led by Dr. Paul Anderson, of Richmond. Dr. Lehman presented the second clinical case, that of gangrene of the toes in a young white woman, evidently the result of some circulatory disease. The case had improved under intravenous injection of typhoid vaccine.

Dr. Thelma F. Brumfield demonstrated the pathological material of a case of rupture of esophagus; the clinical aspects of case with X-ray findings were discussed. Dr. Fletcher Woodward reviewed briefly the anatomy, pathology and symptoms of cardiospasm.

The main paper of the evening was given by Dr. Kenneth Maxey, Professor of Public Health and Hygiene, on *Typhus Fever in the United States*. His paper included a brief history of the disease, the clinical manifestations and his personal contributions to the study of the epidemiology. A brief business meeting closed this session.

It was a pleasure to have with us some of the members of the Albemarle County Society and we extend to the members of the Medical Society of Virginia a cordial invitation to

meet with us. The next regular meeting is to be held January 27th, at 7:30 P. M. It was announced that at the following meeting on February 10th, the interesting Harvey Film will be shown through the kindness of Dr. Charles H. Frazier, of Philadelphia.

J. B. GRAHAM, M. D.,  
*Secretary.*

## Woman's Auxiliary, to the Medical Society of Va.

### Official Health Program of the Woman's Auxiliary of the American Medical Association

#### I. PUBLIC HYGIENE.

Fundamentals upon which auxiliary work for improvement of public hygiene should be based:

(1) *Recognition of the fact that* public health work is a highly technical job, requiring scientific, technically trained workers. That health work undertaken by lay women with no knowledge of the public health problem as a whole is necessarily fragmentary and ineffective.

(2) *Recognition of the fact that* every State, county and city is entitled to a scientific full-time health department (organized not to treat the sick, but to prevent disease and promote health), adequately financed, free from political domination, and providing continuity of service to a trained personnel so long as work is efficient.

(3) *Recognition of the fact that* the first and most fundamental job for lay organizations like the Auxiliary is to secure such scientific full-time health departments and adequate health protection, in their State, their county, their city or town.

(4) *Recognition of the fact that* where efficient, full-time scientific health departments do not exist (and only about ten per cent of the rural districts of the United States have anything approaching adequate health protection), health activities must be initiated and carried on by volunteer unofficial agencies; but that all such work should be so planned and administered as to serve as stepping-stones toward the full-time official health department, and that when the full-time official health department, with workers trained for public

health work, has become an accomplished fact, lay organizations should support and cooperate with the official workers and should be willing to take orders from them.

(5) *Recognition of the fact that* no health department, State, county or city, can do effective work without intelligent cooperation of the public; and that such public cooperation depends upon widespread health education; that lay organizations can do this educational work, and are needed for it; and that the Auxiliary can be one of the most valuable tools for an official health department to use in this work, because it can by its education of the public concerning the official health department's work and needs, be the means of gradually eliminating or preventing political interference with an efficiently working department, and thus insure to it uninterrupted public service.

Most volunteer agencies do not yet realize the wastefulness of their individualistic efforts. One of the first things the Auxiliary should do is to work for a change of attitude in other volunteer women's organizations.

Health officials know that it is not always the work which makes the greatest emotional appeal to the public which most needs to be done. Unfortunately most women do *not* know this. This is something the doctors' wives might well undertake to teach other women.

The National Auxiliary recommends, therefore, that each State Auxiliary undertake, under the direction and with the help of the Public Health Committee of the State Medical Association and of its Advisory Council a study *first of all* of the fundamental principles of health promotion and disease prevention; second, of the set-up considered essential by public health experts for an effective State health department, of qualifications of personnel, adequate budget, and the like; and third, of the State health conditions; that it devise means of acquainting all the State board members with the result, and that recommendations for educational work by the county Auxiliaries be based upon the conditions found.

In States where all is well and where time has developed good official health machinery and good health conditions, general knowledge of the fact will tend to prevent interruption

of the excellent work, and will be a source of satisfaction to the women of the State.

In those States where there is much yet to be done, this investigation will indicate what sort of work needs doing first. For example:

(a) In those States which are not in the Birth Registration Area, the Auxiliaries would, without doubt, wish to tackle, as their first job, the ninety per cent birth registration problem.

(b) In those States in which the State health department believes the "County Health Unit" to be the solution of the rural health problem, the county auxiliaries should be encouraged to take as their chief work such persistent and widespread education of the public as will gradually create a general demand for the full-time county health department.

(c) In those States where the rural health work is directly done "long distance" by the State health department, the county auxiliaries, if willing to work, and work under the directions of the State health department, can carry on intensive local health educational work which would be impossible for the State department without intelligent local cooperation.

To those auxiliaries which agree with these ideas the committee recommends the following outline of study:

(1) Vital statistics. Their value.

Compare the vital statistics of the State with those of other States.

Compare the vital statistics of the different counties of the State.

Compare the vital statistics of the cities with other cities in the State, and in the United States.

(2) The State Health Department; its organization, and program:

(a) For general state work.

(b) For cooperating with the counties in improving county health conditions.

(3) The value of the Public Health Nurse.

(4) The County Health Unit as a possible solution of the rural health problem.

#### *Community-wide Conditions Which Affect Health.*

(5) Milk:

Milk standards, why necessary, what milk standards your community needs. How are these needs being met?

(6) Housing:



Your community housing laws.

Housing conditions as they have developed under these laws and as they affect health.

Improvements needed.

(7) General sanitation and its relation to the death and morbidity rates.

Sewage disposal.

Water.

Garbage.

Flies.

Dust and street cleaning, etc.

## II. PERSONAL HYGIENE.

The improvement of personal hygiene in any community is almost entirely a matter of education. Here again the Auxiliary members must first educate themselves before they can take a safe part in educating the public. The committee, therefore, recommends that the Auxiliary study programs shall include such subjects as:

Health Promotion:

Prenatal care.

Child Welfare—infant and pre-school hygiene.

School hygiene.

Mental hygiene.

Social hygiene.

The advantage to the public of general compliance with health regulations.

The periodic health examination.

Control of communicable diseases.

The entire program should close with a survey of all the private agencies doing health work in the community, and a discussion of the possibility and desirability of centering the direction of all such work in a full-time, scientific health department, under which the private agencies, while still maintaining their identity, would work in complete cooperation.

## The Truth About Medicine

In addition to the articles enumerated in our letter of November 29, the following have been accepted:

E. Bilhuber, Inc.

Lenigallol—Zinc Ointment.

Cutter Laboratory.

Scarlet Fever Streptococcus Antitoxin—Cutter.

Mead Johnson & Co.

Mead's Viosterol in Oil 100 D.

H. K. Mulford Co.

Ampules Sodium Cacodylate—Mulford,  $\frac{3}{4}$  grain, 1 c.c.

Ampules Sodium Cacodylate—Mulford, 3 grains, 1 c.c.

Ampules—Sodium Cacodylate—Mulford, 5 grains, 1 c.c.

Winthrop Chemical Co., Inc.

Tablets Tutocain No. 6.

The following article has been exempted and included with the List of Exempted Non-medicinal Articles (New and Non-official Remedies, 1929, p. 485): Child Welfare Guild, Inc.

Bite—X.

## NEW AND NON-OFFICIAL REMEDIES

Gelatin Compound Phenolized—Mulford.—A mixture composed of gelatin, zinc oxide, glycerin, and water, containing 1.5 per cent of phenol. It is used in the preparation of bandages to cover chronic ulcers, unhealed secondary burns and the preparation of pressure bandages for varicose veins when surgical treatment is not necessary. H. K. Mulford Co., Philadelphia.

Diphtheria Toxoid—Mulford, 30 c.c. vial.—Diphtheria Toxoid—Mulford (New and Non-official Remedies, 1929, p. 369) is also marketed in packages of one 30 c.c. vial. H. K. Mulford Co., Philadelphia.

Typhoid-Paratyphoid Prophylactic, Hospital Package.—Typhoid paratyphoid prophylactic (New and Non-official Remedies, 1929, p. 379) is also marketed in hospital size packages containing ten complete immunizations. The Cutter Laboratory, Berkeley, Calif.

Ampoule Solution Silver Nitrate 1 per cent—Cutter.—Solution silver nitrate 1 per cent, approximately 0.2 c.c., contained in ampules composed of beeswax. They are used for the prevention of ophthalmia neonatorum. Cutter Laboratory. Berkeley, Calif.

Merthiolate.—Sodium Ethylmercuri Thiosalicylate.—Merthiolate contains from 49.15 to 49.65 per cent of mercury in organic combination. Merthiolate is a potent germicide for spore-bearing and non-spore-bearing bacteria. It is used for sterilizing tissue surfaces. It does not precipitate with serum proteins. Merthiolate is much less toxic than mercuric chloride. Merthiolate is supplied in the form of merthiolate solution 1:1,000, containing 1 gram of merthiolate in 1,000 c.c. of water, buffered with 1.4 Gm. of sodium borate in 1,000 c.c. and containing sodium chloride to make the solution approximately isotonic. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., December 7, 1929, p. 1809.)

Polyanaerobic Antitoxin.—An anaerobic antitoxin (New and Non-official Remedies, 1929, p. 346) prepared by immunizing horses with the toxins of *B. tetani*, *B. Welchii*, *Vibrio septique* and *B. oedematiens*. It is marketed in bottles containing 100 c.c., each 100 c.c. containing at least 5,000 units of tetanus antitoxin, 75 units of Welch bacillus antitoxin, and sufficient antitoxin to neutralize 50,000 minimum lethal doses of *Vibrio septique* toxin and 100,000 minimum lethal doses of *B. oedematiens* toxin. Cutter Laboratory, Berkeley, Calif.

Normal Horse Serum Without Preservative.—A normal horse serum (New and Non-official Remedies, 1929, p. 344) marketed in packages of one vial containing 100 c.c. H. K. Mulford Co., Philadelphia.

Pollen Extracts—Mulford.—The following pollen extracts—Mulford (New and Non-official Remedies, 1929, p. 33) have been accepted: Ader Pollen Extract—Mulford; Alfalfa Pollen Extract—Mulford; Annual Sage Pollen Extract—Mulford; Apple Pollen Extract—Mulford; Aster Pollen Extract—Mulford; Blue Beech Pollen Extract—Mulford; Boneset Pollen Extract—Mulford; Brown Grass Pollen Extract—Mulford; Burning Bush Pollen Extract—Mulford; Burweed Marsh Elder Pollen Extract—Mulford; Buttercup

Pollen Extract—Mulford; California Mugwort Pollen Extract—Mulford; Careless Weed Pollen Extract—Mulford; Cedar Tree Pollen Extract—Mulford; Clover Pollen Extract—Mulford; Crab Grass Pollen Extract—Mulford; Dahlia Pollen Extract—Mulford; Dragon Sage Pollen Extract—Mulford; Elm Tree Pollen Extract—Mulford; English Plantain Pollen Extract—Mulford; Fescue Pollen Extract—Mulford; Golden Glow Pollen Extract—Mulford; Hickory Tree Pollen Extract—Mulford; Milo Maize Pollen Extract—Mulford; Mock Orange Pollen Extract—Mulford; Oat Pollen Extract—Mulford; Olive Pollen Extract—Mulford; Pecan Tree Pollen Extract—Mulford; Pine Tree Pollen Extract—Mulford; Poverty Weed Pollen Extract—Mulford; Prairie Grass Pollen Extract—Mulford; Privet Pollen Extract—Mulford; Quack Grass Pollen Extract—Mulford; Rabbitt Brush Pollen Extract—Mulford; Rose Pollen Extract—Mulford; Salt Bush Pollen Extract—Mulford; Shad Scale Pollen Extract—Mulford; Sheep Sorrel Pollen Extract—Mulford; Slender Ragweed Pollen Extract—Mulford; Spring Amaranth Pollen Extract—Mulford; Sudan Grass Pollen Extract—Mulford; Velvet Grass Pollen Extract—Mulford; Western Giant Ragweed Pollen Extract—Mulford; Wheat Pollen Extract—Mulford; Wild Oats Pollen Extract—Mulford; Willow Tree Pollen Extract—Mulford; Winter Grass Pollen Extract—Mulford; Yellow Foxtail Grass Pollen Extract—Mulford. These pollen extracts are marketed in 5 c.c. vials containing 500 units per c.c. H. K. Mulford Co., Philadelphia.

Thompson's Maltose and Dextrin.—A mixture containing maltose, 51 per cent; dextrans, 45 per cent; sodium chloride, 2 per cent; and moisture, 2 per cent. On the claim that maltose is more readily assimilated than other forms of sugar, Thompson's maltose and dextrin is proposed to supplement the carbohydrate of cow's milk or of water modifications of cow's milk. Thompson's Malted Milk Co., Inc., Waukesha, Wis. (Jour. A. M. A., December 21, 1929, p. 1971.)

#### PROPAGANDA FOR REFORM

Irradiated Ergosterol.—Lest there still remain any misunderstanding, it should be recalled that the therapeutic virtues of cod liver oil are by no means to be identified with irradiated ergosterol; for the liver oil is rich in vitamin A, which is in no way identical with the antirachitic properties of the irradiated ergosterol. The publicly announced statements that solutions of irradiated ergosterol represent the long desired "synthetic cod liver oil" are utterly misleading except as the vitamin D component is concerned. Irradiated ergosterol cannot replace butter—a common source of vitamin A—though it may supplement the valuable milk fat. When a highly potent substance such as irradiated ergosterol becomes readily available, it behooves us to consider carefully whether a danger of overdosage exists. While there appears to be a liberal range between a physiologically beneficent intake and a possibly injurious overdose, there can no longer be much doubt that massive doses of irradiated ergosterol may result in considerable impairment of nutrition, loss of weight, pronounced hypercalcemia, and abnormal calcium deposits in certain tissues and organs. Investigators in the U. S. Public Health Service state that irradiated ergosterol is no doubt a useful drug and one endowed with great potency, but not without possible harm in the hands of the unsuspecting. Probably this is true also, the investigators add, of the haphazard consumption of foodstuffs that have been subjected to the action of ultraviolet rays. (Jour. A. M. A., June 15, 1929, p. 2023.)

## Book Announcements

**Practical Psychology and Psychiatry.** For Use in Training-Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. BURR, M. D. Late Medical Director Oak Grove Hospital (Flint, Mich.), for Mental and Nervous Diseases; Member of the American Psychiatric Association, etc. Sixth Edition. Revised and Enlarged, with illustrations. Philadelphia. F. A. Davis Company. 1930. Octavo of 378 pages. Cloth. Price, \$2.75 net.

**A Textbook of Physiology for Nurses.** By WILLIAM GAY CHRISTIAN, M. D., Professor of Anatomy, Medical College of Virginia. And CHARLES C. HASKELL, B. A., M. D., Professor of Physiology and Pharmacology, Medical College of Virginia. Second Edition. St. Louis. The C. V. Mosby Company. 1929. Octavo of 153 pages. Illustrated. Cloth. Price, \$2.00.

**Getting Well and Staying Well.** A Book for Tuberculosis Patients, Public Health Nurses, and Doctors. By JOHN POTTS, M. D., Fort Worth, Texas. Introduction by J. B. McKNIGHT, M. D., Superintendent and Medical Director, Texas State Tuberculosis Sanatorium. Second Edition. St. Louis. The C. V. Mosby Company. 1930. Octavo of 221 pages. Cloth. Price, \$2.00.

**Symptoms of Visceral Disease.** A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine. By FRANCIS MARION POTTENGER, A. M., M. D., LL. D., F. A. C. P., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California; Author of "Clinical Tuberculosis," etc. Fourth Edition. St. Louis. The C. V. Mosby Company. 1930. Octavo of 426 pages with eighty-seven text illustrations and ten color plates. Cloth. Price, \$7.50.

**Additional Studies of the Arts, Crafts, and Customs of the Guiana Indians.** With Special Reference to Those of Southern British Guiana. By WALTER E. ROTH. Smithsonian Institution. Bureau of American Ethnology. Bulletin 91. U. S. Government Printing Office, Washington, D. C. 1929. Octavo of 110-xvii pages. Illustrated. Cloth. For sale by the Superintendent of Documents, Washington, D. C. Price \$1.00.

**Book of Diets.** Bulletin published Quarterly by the Staff, McGuire Clinic, St. Luke's Hospital, Richmond, Va. Second Edition, Revised. January, 1930. Octavo of 48 pages. Paper.

As was announced in the last bulletin, this edition of the Books of Diets is published as Volume II, No. 1, of the bulletin. In the main, the original form has been adhered to, but the editors have felt that certain modifications would be definite improvements.

Special effort was made in preparing this book to keep it a manual rather than have it a text-book on dietetics. Attention was given to the selection of a variety of available foods so that proper diets might be selected for all patients whether rich or poor, urban or rural.



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## Editorial

### The Use of Dextrose in Pneumonia.

MacLachlan and associates\* direct attention to the use of dextrose in the treatment of pneumonia cases. In 1914 a French writer brought out the advantages of this aid in pneumonia treatment. He gave a 25 per cent solution intravenously three or four times daily using 250 c.c. each time. The method was taken up, as is known, by workers in this country; and favorable conclusions were drawn. It was thought to be helpful as a food and as a heart stimulant. Two English physicians, in 1925, gave 200 to 500 grams of dextrose by mouth in lemonade in each twenty-four hours. Other workers adopted the method in toxic conditions as well. Some studies on toxic myocardium phenomena, by dextrose given intravenously, were favorable in that heartbeats were restored when other methods had failed. Germans have been in favor of intravenous dextrose in angina pectoris. Other workers have held that digitalis action is improved by associated use of dextrose.

Our authors recommend the following as the best way to administer dextrose in pneumonia: Give from 400 to 600 gm. of dextrose by mouth each day. They find that this can be done by dissolving 200 gm. of dextrose (Dextrose Powder—Corn Products Company) in 1000 c.c. of water and to this add the juice of 2 to 3 lemons. This represents 800 calories and it is "very palatable." The patients are induced to drink 2 to 3 liters each 24 hours, making 1600 to 2400 calories. If patient is unable to take the above amounts, a 25 per cent solution of dextrose is given intravenously four to six

times each 24 hours, using no more than 200 c.c. each time. The workers give interesting tables showing the favorable experiences in this method and to the article is appended bibliographic references of interest.

### Carbon Dioxide Inhalation in the Treatment of Pneumonia.

The mid-winter and late-winter season brings the profession each year face to face with unconquered problems of pneumonia. Many of the infections have yielded. Like typhoid fever and diphtheria, professional and scientific knowledge has about brought certain nation-wide infections to a minimum of incidence. This has come about through the conquering effect of preventive and therapeutic medicine, but undiminished, pneumonia remains a disease of the winter season with a high mortality. It is indeed interesting and intriguing to note the suggestion that possibly failure to make a dent in the ever-recurring advance of pneumonia may be due to lack of consideration of factors not heretofore recognized. Studies have been vigorous and widespread in the problems of bacteriology and serology and preventive medicine, but the factors brought to light in these fields have left a disease quite as deadly as it was a half-century ago. In the face of want of success, there are those who raise the question that there may be or must be other matters in the treatment not yet brought to light; or not yet applied. It is with some sort of suggestive slant as this that one may peruse the article by Yandell Henderson and others\* on the treatment of pneumonia by inhalation of carbon dioxide. Upon the idea that "pneumonia may involve some factor that is not concerned in other diseases," these workers have presented their publication.

After all, one must look upon pneumonia as an intensive infection, attacking an organ's active function, with a short and definitely clear-cut duration. It is a disease of strangle and obstruction. It blocks and obstructs and occludes a drainage system of the lungs. The disease combats the surgical principle: drainage. Upon this principle of surgery is founded much of the achievement of that great specialty. While drainage of infection by surgical means has been widely used in various phases of surgery, the drainage of infection from the lungs has been brought to the fore by the suc-

\*MacLachlan & Others. A. J. M. Sc. January, 1930. Page 963.

\*Archives of Internal Medicine—Vol. 45, No. 1, pg. 72.

cessful use of the bronchoscope. With the airways opened and drained by bronchoscopy, many infections of lungs have been cured.

Our authors bring out the part played by atelectasis in pneumonia; they point out the relation of the infection to the atelectasis, created through inadequate drainage. The occlusion of respiratory passages adds to the virulence of the pneumonia. It becomes a critical factor in the brief days of self-limited pneumonia. This is shown by experimental and clinical evidence. The normal drainage is stopped in pneumonia. Pneumonia after asphyxia, with rales, edema and bronchopneumonia, falls within the same principles of occlusion of drain-ways. Atelectasis and pneumonia in the newborn, as well as post-operative pneumonia, likewise come under the same condition of inadequate drainage.

Effectiveness of the inhalation of carbon dioxide is due to the deep breathing induced. It is this principle that explains the effectiveness of the treatment of carbon monoxide asphyxia by inhalation of oxygen and 5 per cent carbon dioxide in the prevention of pneumonia. Likewise, it has been shown that inhalation of carbon dioxide at the termination of general anesthesia prevents post-operative pneumonia as brought about by the same process. Henderson's and Haggard's work in the treatment of asphyxia during anesthesia is well known. They introduced the treatment as a stimulant of respiration, thus expediting drainage of occluded air passages. The use of carbon dioxide in pneumonia, as shown in this report, is indeed highly suggestive of a new factor in fighting this disease. Several hundred, they state, have been treated with oxygen and 5 per cent carbon dioxide. Inhalators used in resuscitating patients with carbon monoxide asphyxia were employed. In one group of 126 cases of pneumonia, only nine died. Besides, a number came to a crisis immediately after inhalation was instituted. More important still is the fact that patients treated early all recovered; the deaths occurred in the cases treated late in the attack.

### **Oxygen Therapy in Pneumonia.**

Anoxemia is one of the factors of the pneumonia problem. And anoxemia is not only a state of the pulmonary blood, but also of the heart and general system. Metabolism, resistance, cardiac response and endurance, cerebral stimuli may all be influenced by deficient aera-

tion of the blood. Physiological action, under the effect of anoxemia of pneumonia, brings about a depression of those functions that are so essential in the short and limited time in deadly pneumonia. Before the crisis, toxemia, anoxemia, cardiac failure and cyanosis may combine to kill. Guedel\* and others have drawn attention to anoxemia and oxygen therapy in pneumonia. Experience during the past few years appears to favorably impress one with the great help of oxygen therapy, administered early and throughout attacks of pneumonia.

The mechanism of oxygen therapy should be understood because there appears to be certain essential details, necessary of application, in order to bring about proper absorption of oxygen into the blood. Elevation of partial pressure of oxygen in the "atmospheric environment" of the patient, thereby forcing a greater quantity of oxygen through the alveolar membrane into the blood is an important desideratum of oxygen administration in pneumonia. Early administration is also an important point in its successful use. To await anoxemic symptoms is to await toxic phenomena; in other words, oxygen to be of value must be in place early in pneumonia. Oxygen is needed when its administration improves the heart and respiratory status of the patient and comforts and rests the pneumonic patient. "Keep the finger-nails pink" is a standard of treatment and a slogan of action.

The 20 per cent oxygen of atmospheric air forces ample diffusion through the normal lung and an atmosphere containing from 30 to 50 per cent of oxygen appears to be adequate in removing anoxemic signs in pneumonia. Oxygen, under this pressure, should be given nearly constantly during the course of the disease; after all the crisis, because of untoward anoxemic effects, may bring about acute heart failure. The patient should be told, with reassuring tones, that oxygen administration is not a last resort but that it is given early in order to keep off serious complications.

The oxygen tent and oxygen meter devised after Guedel is an excellent method of accomplishing adequate oxygen administration in pneumonia.

### **Post-Operative Pneumonia.**

Henderson and Haggard, and Coryllos† have shown by their work and publications striking

\*J. A. M. A., Vol. 92, No. 14, Page 1152.

†J. A. M. A., Vol. 91, No. 2, Pages 95 to 100.



effects in prevention and cure of pneumonia (post-operative) by carbon-dioxide administration. No internist or physician can afford to neglect a careful study of their work. In the presence of the high incidence and dreadful mortality of an unconquerable disease, such as pneumonia has proven to be by all bacterial, serologic and drug-methods of treatment, one should give serious consideration to a new start and line of attack as described by the work of these men.

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## News Notes

### **Dates Set For Norfolk Meeting of Medical Society of Virginia.**

The Council of the Medical Society, at its mid-winter meeting held in Richmond, February the 1st, was well attended and selected October 21, 22 and 23, 1930, as the dates for our annual meeting in Norfolk. Every effort was made to avoid conflict with the dates of other medical organizations. This gives promise of being an unusually interesting meeting and we hope our members will make their plans to attend.

The Norfolk County Medical Society recently appointed the following doctors as a committee on arrangements for this meeting: Dr. W. L. Harris, chairman, with Drs. R. L. Payne, Claiborne Willcox, F. C. Rinker and E. T. Hargrave as associates.

### **The Virginia Public Health Association**

Met in Richmond, January 9, 1930. The principal speakers from outside were Mr. Homer N. Calver, Executive Secretary of the American Public Health Association, who talked on "The Functions of a State Health Association," and Dr. Blanche Haines, of the United States Children's Health Bureau, who gave an interesting talk on "Presidential Interest in Child Health." Dr. Charles R. Grandy, President of the Medical Society of Virginia, gave an excellent paper on "Cooperation between the Physician and the Health Worker." Dr. J. Allison Hodges, President-elect of the Medical Society of Virginia, talked on the same subject. The attendance of these men and their talks were much appreciated. The relationship between the two societies cannot but be very cordial during the next and future years.

Dr. W. Brownley Foster, President of the Association, gave an interesting paper on

"Negro Mortality" as his presidential address. Dr. C. L. Outland spoke on "Hospitalization of Contagious Cases." A very full and masterly paper on the "Diagnosis of Scarlet Fever" was read by Dr. L. E. Sutton, Jr., and Dr. Fred J. Wampler demonstrated the migration of the ascaris larvae through the lungs of guinea pigs.

Dr. B. B. Bagby, of Courtland, was elected president for the ensuing year. Dr. P. M. Chichester, of Clarendon, was elected first vice-president, and Dr. L. J. Roper, of Portsmouth, second vice-president. Dr. Fred J. Wampler remains secretary-treasurer for another year. Miss Rowena Kneebone, of Richmond, was elected assistant secretary-treasurer. Dr. Wampler was elected the Association's representative on the Governing Council of the American Public Health Association.

### **The American College of Surgeons,**

Virginia, West Virginia, Maryland and District of Columbia Sectional meeting, was held in Richmond, Va., January 9th and 10th. There was an attendance of about 250 surgeons, surgical nurses and hospital officials for this meeting and the Hospital Standardization Conference held at the same time. The local committee in charge of arrangements was composed of Dr. Carrington Williams, chairman, and Drs. Robt. C. Bryan, Chas. R. Robins, G. Paul LaRoque, Greer Baughman, W. Lowndes Peple, Frank S. Johns, A. C. Sinton, Jr., and Karl S. Blackwell. This was an excellent conference. Clinics were held during the morning hours of both days, at the various hospitals throughout the city, as were also Hospital Standardization conferences, clinical addresses and demonstrations; scientific sessions were held in the afternoons. All members of the College were guests for luncheon on the first day at the home of Dr. Stuart McGuire. That evening, a subscription dinner was held, which was followed by short addresses and the showing of both talking and silent motion pictures. A community health meeting, open to the public, was held on the second evening.

Drs. Robert Greenough, of Boston; George W. Crile, of Cleveland, and Willis G. Campbell, of Memphis, were the distinguished visitors present.

Officers selected for the various states are as follows:

VIRGINIA: Chairman, Dr. Clarence Porter Jones, Newport News; secretary, Dr. Carrington

ton Williams, Richmond; councilor, Dr. Southgate Leigh, Norfolk.

**WEST VIRGINIA:** Chairman, Dr. W. A. MacMillan, Charleston; secretary, Dr. J. Ross Hunter, Charleston; councilor, Dr. H. L. Goodman, Ronceverte.

**MARYLAND:** Chairman, Dr. Arthur M. Shipley, Baltimore; secretary, Dr. Richard G. Coblentz, Baltimore; councilor, Dr. James M. Dick, Salisbury.

**DISTRICT OF COLUMBIA:** Chairman, Dr. R. M. LeComte; secretary, Dr. E. W. Titus; councilor, Dr. William B. Marbury, all of Washington.

It is planned to hold the next meeting of this section in Baltimore in January, 1931.

### **Mental Hygiene Congress, May 5th to 10th, Washington, D. C.**

Problems involving disorders of the human mind and the consequences will bring together psychiatrists, mental hygienists, neurologists, general medical practitioners, psychiatric social workers and nurses, educators, lawyers, public welfare administrators, and others, in a meeting in Washington, D. C., May 5th to 10th. The First International Congress on Mental Hygiene, the American Psychiatric Association and the American Association for the Study of the Feeble-minded will be the participants. Such a mobilization of forces from all parts of the civilized world, to make an organized fight against mental disease and allied conditions that distress and retard the human race, is a most significant and important event in world progress in behalf of mankind.

The purpose of the Congress may be summarized as follows:

To exchange information and experience and consider individual and social problems growing out of mental and nervous disease, mental defect and mental and emotional maladjustments of the individual to his personal and social environment.

To consider ways and means of more effective promotion of mental hygiene in the various countries of the world.

To endeavor to correlate the special knowledge and experience of psychiatrist, psychologist, psychiatric social worker, occupational therapist, public administrator, educator, sociologist and those of related professions in determining how best to care for and treat

the mentally sick, to prevent mental illness and to conserve mental health.

To endeavor to determine upon the objectives for the organized mental hygiene movement. To create world interest in mental hygiene and to establish more generally the fact that mental disease can in large measure be prevented and that greatly increased governmental and philanthropic expenditure for mental health is sound public policy.

An outline of the preliminary program challenges the attention of every intelligent reader concerned with mental health, prevention of mental and nervous disease and mental defect, and with abnormal human conduct. Some of the topics to be discussed are the following:

Magnitude of the mental hygiene problem as a health problem.

Organization of community facilities for prevention, care and treatment.

Organization of the mental hospital and its role in community life.

Psychopathic hospitals and psychopathic wards in general hospitals.

Organization of special types of clinical service as in courts, out-patient departments of hospitals and colleges.

Community clinics.

School clinics.

Clinical and social research in the field of mental hygiene.

Teaching of mental hygiene and psychiatry in the medical schools.

Mental hygiene in industry, personnel work and vocational guidance.

Psychiatric social work and nursing.

Mental hygiene aspects of delinquency, dependency and other types of social maladjustments.

Social aspects of mental deficiency.

Methods and possibilities of the child guidance clinic.

Parent and teacher training.

Problem of the pre-school period.

Significance of mental hygiene problems for the future of the child as individual and as citizen.

Programs of both technical and popular addresses and discussion conducted by the American Psychiatric Association and the American Association for the Study of the Feeble-minded will, as they always do, appeal to the medical profession and to those individuals directly



concerned with the mentally diseased and the mentally defective.

The committee on organization of the Congress, which has representation from Virginia, acting for the National Mental Hygiene Association and agencies and related organizations throughout the work interested in better mental health for all people, desires cooperation of government, private organizations and individuals in promoting this public mental health movement, which is sponsored by many exceptionally able men and women. These meetings in Washington, so near to Virginia, offer an unusual opportunity to physicians and others in this State, and many will doubtless attend. The out-put of the Congress and the two national associations, meeting conjointly, will materially help the efforts of the Mental Hygiene Bureau of the State Department of Public Welfare, which already has the support of the Medical Society of Virginia.

The administration secretary of the Congress, from whom all information may be had, is Mr. John R. Shillady, 370 Seventh Avenue, New York, N. Y.

#### **Petersburg Hospital Staff.**

Dr. George H. Reese has been elected chairman of the staff of physicians of the Petersburg (Va.) Hospital for the coming year. He succeeds Dr. Mason Romaine whom the staff recommended for membership on the hospital board of directors for a three-year term. Other officers of the physicians' staff are: Dr. Fletcher J. Wright, vice-chairman; Dr. Philip Jacobson, secretary; Dr. Wm. A. Reese, vice-secretary.

Miss Montez Wayne, whose hospital experience covers a period of ten years in large hospitals, has been appointed superintendent of the Hospital, to succeed Miss Isabel Simpson who recently resigned to accept the superintendency of the Southern Orthopedic Hospital, Richmond. Miss Wayne enters upon her duties on the 14th of this month.

#### **Dr. M. L. Dalton,**

For sometime of Floyd, Va., has located at Montvale, Va.

#### **Dr. W. M. Junkin,**

Recently of Richmond, Va., where he was connected with the surgical department of McGuire Clinic, has located in Elkins, West Virginia, where he is connected with the surgical staff of the Davis Memorial Hospital.

#### **Doctors Among Bank Directors.**

The following Virginia doctors are among those recently noted as directors of banks for the current year: Drs. James L. Hamner and H. C. Rucker in the Union Bank and Trust Company of Amelia; Drs. C. S. Dodd and J. M. Williams in the City Savings and Loan Corporation of Petersburg; Drs. Thomas B. Latane and A. W. Lewis in the Southside Bank which has branches at Tappahannock, Aylett and Walkerton; Drs. F. F. Davis and J. W. D. Haynes in the First National Bank of Gloucester; Dr. L. K. Leake in the Bank of Goochland; Dr. John W. Scott in the National Bank of Gordonsville; Dr. H. A. Spitler in the Middleburg National Bank; Dr. W. W. Wilkinson in the Bank of South Hill; Dr. W. P. Jones in the Bank of Middlesex; Dr. H. L. Segar in the Northern Neck State Bank at Warsaw.

#### **Dr. James L. Hamner,**

Mannboro, Va., who has been quite sick in the Petersburg Hospital, with pneumonia, is now much improved.

#### **Dr. Reid White, Jr.,**

Lexington, Va., has been elected surgeon to Camp Frank Paxton, Sons of Confederate Veterans, in that place.

#### **Pan-American Conference of Child Hygiene.**

The Sixth Pan-American Conference of Child Hygiene will meet at Lima, Peru, July 4 to 11, 1930. The Honorable Augusto B. Leguia, President of Peru, is Honorary President of the conference; Dr. Sebastian Lorente, Director of Health of Peru, is President; and Dr. Carlos Enrique Paz Soldan, Honorary Director of the Pan-American Sanitary Bureau, is Secretary-General.

The subjects for discussion will be divided as follows:

Group I. General medical questions: (a) Medicine; (b) Surgery; (c) Hygiene.

Group II. General social questions: (a) Relief; (b) Legislation; (c) Education.

It is expected that delegates from all the American Republics will be present.

#### **Fewer Children in California's Institutions for Dependent Children.**

California believes in home care for children. A decided decrease since 1913 in the population of institutions for dependent children has been brought about by the increased use of financial aid to children in their own homes, foster-home care, and adoption, accord-

ing to the first biennial report of the department of social welfare of the State. About seven-eighths of the children now in the institutions have one or both parents living; most of the orphans have been placed for adoption. The hope in the case of children with one or more parents is, of course, that the family life may be reestablished.

### **Health Conditions in the United States During the Past Year.**

Two unusual situations are noted in the report recently submitted to Congress by Surgeon-General H. S. Cumming, of the Public Health Service. During the calendar year 1928, 38,000 cases of smallpox were reported in the United States and in 1927 only 35,000 cases were reported. It seems strange that year after year more cases of smallpox are reported in the United States than in any other country of the world except British India, yet this disease can be controlled by vaccination and re-vaccination which could, with the cooperation of the public, be stamped out in the course of a few years.

The number of deaths from pellagra in 43 States increased from 4,794 in 1926 to 6,652 in 1928. The disease is more prevalent in rural districts than it is in the cities and Southern States have higher rates than Northern States.

### **The Tri-State Medical Association of the Carolinas and Virginia**

Will hold its annual meeting at Charleston, S. C., February 18-19th, under the presidency of Dr. Cyrus Thompson, of Jacksonville, N. C. The Francis Marion Hotel will be headquarters. Besides many interesting papers, several clinics are to be held on both days. The invited guests are Dr. Cyrus Strickler, Atlanta, Ga., and Dr. Alexius McGlannan, Baltimore, Md. Dr. J. M. Northington, Charlotte, N. C. is secretary-treasurer.

### **Mental Hygiene Clinics.**

Through cooperation with local welfare organizations, health departments, physicians, social agencies, and schools, community mental hygiene clinics have been established by the Bureau of Mental Hygiene, a division of the Virginia Department of Public Welfare, in Roanoke and Danville, and one will soon be held in Norfolk and probably one in another city in the State. Out of this service, it is believed, will evolve in each of the communities a local clinic with adequate technical personnel to insure successful operation.

While the State Mental Hygiene Clinic endeavors to render service in various communities, its chief work during the past year has been in making examinations—physical, psychological, and psychiatric—and recommending treatment of the children committed by the Juvenile Courts to the Children's Bureau of the State Department of Public Welfare, or referred by local welfare agencies or physicians, the number being nearly seven hundred. All cases referred to the clinic other than those committed by the courts are required to have had a physical examination and to be recommended by a regular physician. The staff of the clinic consists of trained psychiatrists, psychologists, psychiatric social workers, and sufficient clerical force to insure complete records of all cases. These and all other clinics operating under the auspices of the Bureau of Mental Hygiene or the State Department of Public Welfare or the State Hospitals will cooperate with the Department of Clinical Education of the Medical Society of Virginia.

Since the main purpose of the Bureau of Mental Hygiene is in the field of prevention of mental disease and mental defect and the conservation of mental health, it looks to the medical profession for support and cooperation in its efforts. The Bureau feels encouraged at the outlook for effective service.

### **"The Hebrew Physician."**

The second issue of "The Hebrew Physician" (Harofeh Hoibri), the only Hebrew Medical Journal published outside of Palestine, has just made its appearance.

The Journal is under the editorship of Dr. Moses Einhorn and Dr. L. M. Herbert. It consists of 180 pages, and contains numerous articles on general medical subjects, including a copy of the manuscript on "Hemorrhoids," by Shlomo Eben Ayub, of Badrash, France (1265 A. D.) A special section is also devoted to new Hebrew medical terminology. All physicians who are interested in this journal, are requested to communicate with The Hebrew Physician, 983 Park Avenue, New York City.

### **Dr. P. G. Hamlin,**

Formerly a member of the staff of the Eastern State Hospital, at Williamsburg, Va., has moved to Philadelphia, where he is associated with Dr. Albert C. Buckley, in the practice



of neuro-psychiatry at the Friends Hospital, Frankford, Philadelphia.

#### **Valparaiso, Chile, Receives a Philanthropic Bequest.**

Don Carlos Van Buren, a wealthy citizen of Valparaiso related to the family of former President Van Buren, of the United States, bequeathed to that city about \$240,000 to be used in starting (1) an institution where mothers may be taught how to care for and feed their children; (2) a school for nurses in a local hospital; (3) an eye clinic; (4) better living quarters for the poor; (5) an institution in which young girls may be cared for and taught to support themselves and a similar institution for boys. Several of the bequests are made with the condition that the Government shall take over the project within a specified time.

#### **To Speak at Medical College of Virginia Finals.**

Dr. George E. Vincent, retiring president of the Rockefeller Foundation, will give the commencement address at the Medical College of Virginia, Richmond, on Tuesday, June 3. At this time approximately 190 will be graduated from the schools of medicine, dentistry, pharmacy, and nursing.

#### **Dr. A. L. Jones,**

Recently of Chillhowie, Va., is now located at Splashdam, Va.

#### **U. S. Civil Service Examinations.**

The U. S. Civil Service Commission, Washington, D. C., announces the following competitive examinations:

Medical officer, associate medical officer, and assistant medical officer, applications to be rated as received by the Commission, until June 30; for chief nurse and head nurse in the Indian Service, and graduate nurse, graduate nurse visiting duty, and graduate nurse junior grade, in various services, applications to be on file with the Commission not later than June 30, 1930.

#### **Life Wastage Among Children.**

A quarter of a million deaths of children below the age of 15 in a single year! This is the gruesome toll for the United States, says the Metropolitan Life Insurance Company, which declares that it is five times that suffered by the American Army in action in the World War. For children of school age the annual toll is found to exceed 45,000 lives, one out of every five being caused by accidents; influenza

and pneumonia, diseases of the heart and tuberculosis follow accidents as important causes. Reducing the number of preventable accidents is indicated, therefore, as the most important step toward saving the lives of school children.

#### **His First Experience.**

Dr. C. V. Montgomery, South Hill, Va., says that in his twenty-four years' of practice he has been called upon to bring a large number of babies into the world. They have usually arrived singly, and occasionally in pairs, but never until last month have they come more than two at a time. His experience now includes triplets—three colored girls—all of whom were living and in good condition at time of this report.

#### **U. S. Public Health Service Broadcasts for 1930.**

Since 1921 the Public Health Service has prepared radio broadcasts on public health subjects for use by the various broadcasting stations throughout the United States. At the present time, there are more than two-hundred stations using this material. For the year 1930, Surgeon-General H. S. Cumming of the Public Health Service has secured the co-operation of a number of eminent specialists throughout the country in preparation of these broadcasts, two of which are prepared by the Service each month. The schedule includes a variety of subjects of great interest to the general public.

#### **The Junior Film Guild.**

The Film Arts Guild of New York is organizing a Junior Film Guild to make carefully selected Saturday and Sunday programs which will appeal to young people. The films will be chosen from lists recommended by the motion-picture committees of magazines and organizations interested in juvenile recreation and education. The programs are to consist of a full-length feature, a short educational subject, a travel film, a comedy, and other items of interest to young audiences. The pictures will be shown first at the Film Guild Cinema in New York but later will be made available to theaters elsewhere.

#### **The American Congress on Medical Education, Medical Licensure and Hospitals**

Is to be held at the Palmer House, Chicago, Ill., February 17th, 18th and 19th, for which time an interesting and varied program has been arranged. Dr. Ray Lyman Wilbur, of Washington, D. C., is chairman of the Coun-

cil on Medical Education and Hospitals of the American Medical Association; Dr. H. M. Platter, of Columbus, Ohio, president of the Federation of State Medical Boards of the United States; and Dr. Harry E. Mock, of Chicago, is president of the American Conference on Hospital Service.

#### **Dr. Norbourne B. Jeter,**

Of the class of '28, Medical College of Virginia, has just located in Covington, Va., for the practice of his profession. After graduating, he served an internship with the City Memorial Hospital of Winston-Salem, N. C., and has recently been connected with the staff of the Virginia State Colony.

#### **A Change in Name.**

Effective February 1, 1930, the Victor X-Ray Corporation, of Chicago, will be known as the General Electric X-Ray Corporation. The trade mark "Victor" heretofore used will be retained as the trade designation of the products manufactured by the General Electric X-Ray Corporation. The status of the organization otherwise remains unchanged, and the long established Victor policies will continue to be carried out by the same management and field organization throughout the various branch offices located in the United States and foreign countries.

#### **Dr. E. S. Barr,**

For several years superintendent of the Philadelphia Hospital for Mental Diseases at Byberry, Philadelphia, was several months ago appointed director of the Chester County Hospital at West Chester, Pa., and has entered upon his duties there. This hospital has every modern and approved facility and was built recently and is largely endowed by Pierre S. DuPont. Dr. Barr is an alumnus of the Medical College of Virginia and for a number of years a member of the Medical Society of Virginia.

#### **Attend Mental Hygiene and Psychiatric Clinics.**

Dr. William F. Drewry, of Richmond, director of the Mental Hygiene Bureau, State Department of Public Welfare, and Dr. George A. Wright, superintendent of the Southwestern Virginia State Hospital at Marion, recently spent several days with the State Departments of Mental Health in New Jersey, Pennsylvania and Maryland, studying methods of conducting mental hygiene and psychiatric

clinics at some of the best state and private hospitals.

#### **Light in the Treatment of Disease.**

Many newspapers, in commenting on the recent radio broadcast of the U. S. Public Health Service pertaining to the use of light in the treatment of disease, unfortunately misquoted the Service as condemning the use of lamps, emitting ultra-violet rays. It is felt that this mis-statement of facts is most unfortunate, for such lamps have unquestionably been shown to be of great value when used under certain conditions. There are several different types of lamps used for the production of artificial light for therapeutic purposes and a person without medical training should not select and use a lamp at random, but before purchasing and using a lamp should consult his physician.

#### **Japan Prohibits Night Work for Young Persons.**

Night work from 11 P. M. to 5 A. M. for young persons and women working in factories in Japan came to an end on July 1, 1929, the prohibition affecting approximately 1,000 young persons and 196,000 women. Hereafter Japanese cotton mills will be operated on a two-shift basis from 5 A. M. to 11 P. M., and the actual hours of work will be reduced from 10 hours to 8½ a day. Many factories celebrated the day. The industrial association of the Okayama Prefecture requested its affiliated factories to have all their employees examined medically on that day and to start courses in athletics, and it has set apart the date to be observed annually as "health day."

#### **Board of Pulaski Hospital.**

Dr. R. H. Woolling has been re-elected president of the Pulaski (Va.) Hospital, for the year of 1930; Dr. R. F. Thornhill, vice-president; Dr. D. S. Divers, treasurer; and Dr. H. R. Farley, secretary. These with two laymen comprise the board. The annual report showed that the hospital had a good year.

#### **Dr. Howard A. Kelly,**

Prominent surgeon and lecturer of Baltimore, Md., gave a talk on "What Use I Make of the Bible" at All Saints Church, Richmond, Va., on the afternoon of February 4th. He also gave an address that evening to the medical profession and public of this city.

#### **Dr. W. R. Weisiger Promoted.**

Dr. William R. Weisiger, Richmond, Va., has just been advised of his promotion from the rank of major to the grade of lieutenant



colonel, Medical Corps reserve. Colonel Weisiger served with the 77th division in France and has been active in reserve corps activities. He is at this time a member of the executive committee of the Richmond chapter, Reserve Officers' Association.

#### **Dr. Richard Mason,**

Of The Plains, Va., with several friends, left the latter part of January for a cruise on the Caribbean Sea and for a visit to the West Indies, Cuba and Panama. They were to be away for several weeks.

#### **Establish \$10,000 Annual Award for Greatest American Achievement in Science.**

Search has been started for an American citizen whose study or experiment bears the promise of achievement of the greatest value to the world. To the man or woman whose accomplishment in the twelve months prior to June 30, 1930, meets this test, it is announced, *Popular Science Monthly* will award a prize of \$10,000 accompanied by a gold medal. A similar award, the largest in America for scientific accomplishment, will be made annually thereafter.

In making this announcement, O. B. Capen, president of the Popular Science Publishing Co., explained that the award was instituted with a dual purpose—to heighten the interest of the American people in those conquests of the laboratory and the workshop which benefit the entire community, and to focus attention upon the many scientific workers who, without thought of personal profit, toil to better man's control over his physical surroundings.

The award will be bestowed under the auspices of the Popular Science Institute, a research organization maintained by the magazine, of which Prof. Collins P. Bliss, associate dean, New York University, is director. The Institute has enlisted the services of twenty-four leaders in American science to serve as a Committee of Award, whose task it will be to select the prize-winning effort.

The prize will be conferred for the first time in September, 1930, and the initial period of scientific accomplishment to be considered by the Committee of Award will be the twelve months ending June 30, 1930. All scientific workers, professional and amateur, academic and commercial, are eligible.

#### **Hongkong Seeks to Stop the Selling of Girl Children.**

An ordinance has been introduced into the

legislative council of Hongkong which seeks to abolish the system by which parents or natural guardians can sell their daughters into other households to what is frequently a condition of practical slavery. The proposed law forbids such transfer of a minor under the age of eighteen, except for the *bona fide* purpose of a proposed marriage or adoption according to the Chinese custom, and it also makes it an offense to possess a girl illegally transferred after the coming into force of the ordinance.

#### **Association of Drs. Tucker, Masters and Shield.**

Dr. Beverly R. Tucker, Richmond, Va., announces that Dr. Howard R. Masters, who has been associated with him for the past ten years, and Dr. James Asa Shield, who has just returned from post-graduate work in Europe and New York, are now associated with him and constitute the firm of Drs. Tucker, Masters and Shield in the practice of Neurology and Related Conditions. Their offices will be at the corner of Madison and Franklin Streets in the new addition to the Tucker Sanatorium.

The Sanatorium has just completed a large addition in which will be extensive physiotherapy department, new offices, examining and treatment rooms, exceptionally nice patients' rooms with baths, and an open roof garden.

#### **Married.**

Dr. Harvey Lee Griffin, of the class of '26, Medical College of Virginia, and Miss Alice Finch Jackson, Chase City, Va., in Richmond, December 26, 1929. They are now making their home at Biscoe, N. C.

#### **Engagement Announced.**

Dr. William T. Burch, of Alexandria, Va., and Miss Olga Crabdall, daughter of Harry M. Crabdall, retired motion picture magnate. The marriage will take place in the spring.

Dr. Burch recently returned from Philadelphia, where he took Dr. Chevalier Jackson's personal course in Bronchoscopy and esophagoscopy.

#### **Dr. Otto F. Geck,**

Recently of Petersburg, Va., is now in New York City, where he is pursuing special studies in pathological and clinical neurology.

#### **Does Care of Mothers and Babies Pay?**

It pays in the lives of both mothers and babies to give medical and nursing care before

and after the birth of the infant. In a group of 10,444 births which occurred during a four-year period in the four communities where the Commonwealth Fund carried on child-health demonstrations, the death rate for mothers who received public-health prenatal instruction and supervision in cooperation with the family physician was less than half that for mothers who did not receive such care. Among the mothers receiving care the stillbirth rate was only half as high, and the mortality rate for their babies during the first month of life was only two-fifths as high as in the uncared-for group.

#### **Virginians Graduate At Army Medical School.**

The list of graduates from the Army Medical School, Washington, D. C., on January the 31st, included three Virginians: Drs. Clyde L. Brothers, of Richmond; Claude L. Neale, of Saluda; and John R. Wood, of Dumbarton. All three of these young doctors graduated from the Medical College of Virginia in the class of '28.

#### **The Richmond (Va.) Pediatric Society,**

At its meeting in January, under the presidency of Dr. J. B. Stone, elected the following officers for 1930: President, Dr. Basil B. Jones; vice-president, Dr. Henry S. Stern; secretary-treasurer, Dr. John S. Weitzel. This society has a membership of fifteen and they have interesting meetings.

#### **Dr. Payne Entertains Members of Norfolk County Medical Society.**

On January the 13th, Dr. Carrington Williams, Richmond, by invitation, addressed the Norfolk County (Va.) Medical Society, on "Thrombosis in the Arteries," giving an excellent presentation of this subject. Before the meeting, Dr. R. L. Payne entertained at dinner in honor of Dr. Williams and Dr. Robert DuVal Jones, Jr., which was attended by the members of the Society and a number of invited guests from out of the city.

Dr. Jones is a new comer to Norfolk, having just become associated with Dr. Payne.

#### **Germany's Inn for Young Hikers.**

A large number of inexpensive inns have been opened in Germany to shelter the enormous number of school boys and girls who go on long walking tours. These inns are maintained chiefly by public funds but are managed by the clubs of young people that make use of them. So popular has hiking become in Ger-

many that about 3,500,000 school children were accommodated in these shelters during 1928.

#### **The U. S. Pharmacopoeial Convention.**

The eleventh decennial convention for the Revision of the Pharmacopoeia of the United States of America will be held in Washington, D. C., on May 13, 1930. Dr. Reid Hunt, Boston, Mass., is president of the Convention, and Dr. Lyman F. Kebler, 1322 Park Road, Northwest, Washington, D. C., is secretary.

Dr. Charles R. Grandy, president of the Medical Society of Virginia, has appointed the following delegates and alternates to represent our Society at the Convention: Delegates, Drs. Alex. G. Brown, Jr., Richmond; J. C. Flippin, University; and P. W. Boyd, Winchester; Alternates, Drs. James H. Smith, Richmond; Julian M. Robinson, Danville; and A. L. Tynes, Staunton.

#### **Dr. Leigh Honored.**

Dr. Southgate Leigh, prominent Norfolk, Va., surgeon and former president of the Norfolk-Portsmouth Chamber of Commerce, on January the 7th, was presented the Cosmopolitan Club's Distinguished Service Medal for 1929, at a banquet given in his honor at the Norfolk Country Club. The speaker making the award reviewed the many services rendered by Dr. Leigh, in addition to the honors which have been conferred upon him as a physician and surgeon.

#### **Dr. Paul McFarlane,**

Of the class of '28, University of Virginia, Department of Medicine, after completing an internship at the Protestant Hospital, Norfolk, Va., has located at Scottsville, Va., where he is engaged in general practice.

#### **Dr. Charles W. Scott,**

Of the State Department of Health, has just returned from Boston, where he spent several weeks attending clinics and studied heart diseases under Dr. Paul White. Mrs. Scott accompanied Dr. Scott to Boston.

#### **Your Income Tax.**

Failure to receive a form does not relieve a taxpayer of his obligation to file an income tax return and pay his income tax within the period prescribed—on or before March 15, 1930. Forms may be obtained upon request, written or personal, from the offices of collectors and deputy collectors of internal revenue.

The Department of Clinical Education of the Medical Society of Virginia has just mailed to all Virginia doctors copies of in-



structions for doctors in making out their income taxes, as reprinted by courtesy from a recent issue of the *Journal of the American Medical Association*. This reprint is well worth the perusal of every doctor before filing his income tax returns for the past calendar year.

### **Post-Graduate Instruction in Eye, Ear and Throat Specialties.**

As has been its custom for the past several years, the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Va., will hold its course of post-graduate instruction at the hospital, 711 South Jefferson Street, that city, April the 7th to 12th, inclusive. All the lectures, demonstrations and operations will be held at the hospital, while the round table discussions will be held at the Patrick Henry Hotel each day immediately following lunch.

The clinics will be conducted by prominent specialists from other states. Following is a list of doctors who have registered, to this date, for the course:

Dr. E. Vermillion, Welch, W. Va.  
 Dr. J. Mason Baird, Columbus, Ga.  
 Dr. M. R. Mobley, Florence, S. C.  
 Dr. W. H. Lefevre, Lancaster, Pa.  
 Dr. J. L. Sanders, Greenville, S. C.  
 Dr. Meade Edmunds, Petersburg, Va.  
 Dr. J. M. Woodson, Temple, Tex.  
 Dr. E. C. Bryce, Richmond, Va.  
 Dr. S. R. Lucas, Florence, S. C.  
 Dr. R. E. Repass, Miami Beach, Fla.  
 Dr. S. M. Cottrell, Richmond, Va.  
 Dr. R. W. Vaughan, Richmond, Va.  
 Dr. Karl Blackwell, Richmond, Va.  
 Dr. Wallace Gill, Richmond, Va.  
 Dr. Curt H. Krieger, Louisville, Ky.  
 Dr. C. H. McArthur, Rome, Ga.  
 Dr. G. E. Campbell, Johnson City, Tenn.  
 Dr. W. F. Beckner, Huntington, W. Va.  
 Dr. J. R. Vermillion, Princeton, W. Va.  
 Dr. J. M. McWilliams, Fayetteville, Tenn.

For further information, address Dr. E. G. Gill, Box 871, Roanoke, Va.

### **Dr. O. L. Watkins,**

Rustburg, Va., who was ill for a time in Lynchburg, is now at home and much improved.

### **Dr. Archer A. Wilson,**

Resident in neuro-surgery of the Hospital Division of the Medical College of Virginia, is spending several months at the Boston (Mass.) City Hospital, doing special work in neurology. Upon completion of this course, he will resume his work in Richmond.

### **Dr. and Mrs. A. W. Lewis,**

Bruington, Va., recently enjoyed a trip to Florida.

### **Dr. Claude Moore,**

Formerly of Roanoke, Va., but for the past year connected with the staff of the Mayo Clinic, Rochester, Minn., has located in Washington, D. C., with offices at the Rochambeau, 815 Connecticut Avenue, Northwest. Dr. Moore has been put in charge of the roentgenological department of the George Washington University Hospital, and has been made clinical professor of roentgenology in the Georgetown University Medical School. He will also be consulting roentgenologist to Gallinger Municipal Hospital of that city, in addition to his private and consultation work.

### **Dr. Ernest T. Trice,**

Richmond, Va., has been selected by Governor John Garland Pollard as a member of his official staff. Dr. Trice has been a member of the Medical Reserve Corps for a number of years and has been active in the Service.

### **The Southwestern Virginia Medical Society**

Is to hold its semi-annual meeting at Radford, Va., March the 24th and 25th, under the presidency of Dr. J. Coleman Motley, of Abingdon. Dr. E. G. Gill, Roanoke, is secretary. Dr. W. S. Leathers, Dean of the School of Medicine, Vanderbilt University, Nashville, Tenn., and an alumnus of the University of Virginia, is the invited guest and will read a paper on "Preventive Medicine." Several interesting papers have already been scheduled for this meeting.

### **Desires Change in Location.**

X-ray and Laboratory Technician, employed at present time, desires change in location. Four years' experience. Qualified in all X-ray and laboratory technique, also basal metabolism. College graduate. A-1 experience. Address "R. T.," care this journal. (*Adv.*)

### **Position Open.**

A desirable position is now open in a State Hospital for Mental Diseases, with good salary and comfortable living arrangements. Communicate with "J. H. B." in care this journal. (*Adv.*)

### **Position as Assistant or a Partnership Wanted.**

Two years' hospital work. General work. Majored in surgery and G. U. work. White, aged 25. Married. Protestant. Address "No. 218," care this journal. (*Adv.*)

## Obituary Record

### Dr. Philip David Pence,

St. Charles, Va., died early in the morning, January 2nd, following a cerebral hemorrhage the night before. He was 55 years of age and a graduate of the Medical College of Virginia in the class of '07. Dr. Pence was surgeon-in-charge of the coal fields in Lee County, Va., and was president of the Lee County Medical Society. He had been a member of the Medical Society of Virginia since 1910.

The following resolutions were passed at a called meeting of the Lee County Medical Society:

In the sudden death of Dr. Philip David Pence, we sustain a great loss in the ranks of the Southwestern Virginia medical profession, and particularly in the immediate field in which he practiced and exercised his great influence. He was devoted to his calling, and as surgeon-in-charge of the coal fields in Lee County, he developed skill and renown. He was ever enthusiastic in what he undertook to do and took an active part in every good work affecting the community. His ardent political zeal was an expression of his sincere patriotism. As a doctor his altruism and tender sympathy is recognized and to be long remembered by a very wide clientele.

Dr. Pence was a graduate of the Medical College of Virginia in 1907; he was 55 years of age, his death resulting from a cerebral hemorrhage.

WHEREAS, Divine wisdom has decreed the removal of our fellow and friend from among us. Be it

RESOLVED, That this expression of our great respect and esteem be recorded in the minutes of our Society, and a copy of same be sent to the family and also published in the VIRGINIA MEDICAL MONTHLY.

GEO. W. YOUNG,  
C. E. McNEIL,  
C. C. PEARCE,  
J. B. MUNCY,  
T. B. ELY,  
R. N. GRAHAM,  
W. J. INNES,  
C. S. GRESHAM.

### Dr. Edward Hobday Claud

Died at his home in Portsmouth, Va., January 12th, following an illness of several weeks. He was 55 years of age and a native of Southampton County, Va., though he had resided in Portsmouth and practiced there for the past 31 years. He was graduated from the former University College of Medicine, Richmond, in 1899. Dr. Claud was past master of the Portsmouth Naval Masonic Lodge and had been a member

of the Medical Society of Virginia since 1910. He is survived by his wife and one daughter.

### Dr. Mathew W. Jewett,

Ivanhoe, Va., died at his home in that place on November 12, 1929. He was seventy-four years of age and had graduated in medicine from the Baltimore Medical College in 1883. He was a Confederate veteran and had been a member of the Medical Society of Virginia since 1895. His wife preceded him to the grave by about two years.

### Dr. Henry Lewis Burwell,

Formerly of Chase City, Va., died at the home of his daughter, in Roanoke, January 29th, aged 74 years. He retired from practice several years ago and he and his wife moved to Roanoke to make their home with their daughter. Dr. Burwell was a graduate of the Kentucky School of Medicine in 1879 and had been a member of the Medical Society of Virginia since 1885. He is survived by his wife and daughter.

### Dr. Philip Seddon Roy,

A former member of the Medical Society of Virginia and of the Medical Society of Virginia, Maryland, and the District of Columbia, died at his home in Washington, D. C., December 18, 1929, of angina pectoris. He was 68 years of age and a graduate of the University of Virginia, Department of Medicine, in 1880. Dr. Roy was an ex-president of the Medical Society of the District of Columbia and a member of the House of Delegates of the A. M. A. from his Society for a number of years.

### Dr. Frank Le Moyne Hupp,

Surgeon of international reputation, died at his home in Wheeling, W. Va., December 24, 1929, at the age of 64, death being due to cerebral hemorrhage. He was a graduate of the Medical Department of Columbia College, New York, in 1889. Dr. Hupp represented West Virginia in the House of Delegates of the A. M. A. for several terms and was an ex-president of the West Virginia State Medical Association.

### Dr. Arthur Fulkerson Toole,

Asheville, N. C., died November 4, 1929, at the age of 52 years. He was a graduate in medicine of the University of Virginia, class of 1900, and was a member of the Medical Society of the State of North Carolina.



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61st Annual Meeting, Medical Society of Virginia in  
Norfolk, October 21-23, 1930

# Virginia Medical Monthly

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## THE TREATMENT OF VARICOSE VEINS BY THE INJECTION METHOD.\*

By DON DANIEL, M. D., Richmond, Va.  
Johnston-Willis Hospital.

The injection of chemical irritants in venous channels to cause sclerosis and obliteration of these channels is by no means a new procedure. In 1851, Pravaz, on perceiving that ferric perchloride caused quick clotting of blood, employed this substance in the treatment of aneurysms. In 1858, Chassaignac used the same chemical substance intravenously to obliterate varicose veins. Practically every year since that time one can find in the literature almost every irritating substance in the pharmacopœia used for the purpose of obliterating these veins. Vallette, in 1875, employed tannic acid, and, with the succeeding years, we find, used by various advocates, arsenical preparations, mercuric chloride, alcohol, and even 5 per cent phenol! Because of these strong substances, the lack of proper technique and the subsequent complications, the injection method of treating varicose veins fell into well deserved disrepute. About this time scientific surgery was born, extensive resection of varicose veins superseding injections, and the pendulum justly swung in the opposite direction. Surgery also had its day, but, because of unsatisfactory results, the pendulum once again began to move. Such men as Sicard, Gaugier, Alexander, Forestier, Douthwaite, and Genevrier, working with improved technique and milder and more specific solutions, such as sodium chloride, sodium salicylate, glucose, urethane and quinine hydrochloride, deserve the credit for the present day method of treatment. Do not understand me to say that the last word has been spoken on the treatment of varicose veins, but certainly a forward step has been taken.

Let us digress a moment and review the anatomy, physiology, and mechanics of the normal veins of the lower extremity. There are two main venous return routes—the deep, which

follows the larger arteries, and the superficial, or saphenous, which is found from the large toe, coursing along the inner aspect of the lower extremity, and entering the femoral vein at the foramen ovale near the groin. Between these two channels there are communicating veins which only allow the saphenous or superficial to communicate with the deeper or femoral vein. The communicating veins are normally “one way streets” because of their valves. The venous flow returns from the lower extremities because of the arterial pressure, the aid of valves, the muscular tone and action and the aspiratory action of respiration. The superficial or saphenous system lacks the muscular protection and action, and is only covered by a variable amount of fat, superficial fascia, and skin.

The exact etiological factor of varicose veins has never been definitely determined. Heredity, occupation, posture, chronic low-grade infection, increased abdominal pressure, including pregnancy, fibroids, etc., certainly play their part. Whatever the cause, the clinical pathology is as follows: There is a slight engorgement of the veins of the legs. This progresses with an increased pain and tired feeling of the patient until there is a distinct bulging or prominence of the saphenous vein and its tributaries. In time they become tortuous, elongated and dilated. At night there is swelling of the feet and legs. The veins have lost their tone and the flow becomes stagnant, and, finally, with the advent of valvular inefficiency, there is an actual reversal of venous flow. Here gravity plays its role and a vicious cycle results. DeTakats shows that normally the venous pressure in the erect posture is from 8 to 18 c.m.m. of water, while in the varicose state the pressure may be from 76 to 210 c.m.m. He also compared the CO<sub>2</sub> and O<sub>2</sub> content of the cubital blood with that of the varicose blood and found a marked increase in CO<sub>2</sub> and a decrease in the oxygen in varicose blood. Because of this increased pressure, anoxemia and acidosis, there is a thickening and hyper-

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

trophy of the parts with eventual damage to the arterial and lymphatic systems. Edema, eczema, and ulceration follow.

In the out-patient department of the Medical College of Virginia I have noticed for years patients with varicose ulcers, who have been "the rounds" of doctors and dispensaries to have their ulcers healed, only to reappear again on the slightest provocation. Some of them gave a history of ten to fifteen years, which was verified by the large areas of pigmentation and scar formation at the sites of previous ulcers. The majority of these patients would not have these veins removed by operation, so I began to use the injection method.

By nature I am prejudiced against intravenous injections, so a thorough investigation of the injection treatment of varicose veins was made. I visited several of the large clinics of New Jersey, New York, and Boston and was impressed with the work of Dr. J. C. White, of the Peripheral Circulatory Department, of the Massachusetts General Hospital. I am indebted to Dr. White for his interest and permission to adopt his method. I have employed several irritants, but found that quinine-urethane (urethane 2 gm., quinine hydrochloride 4 gm., distilled water 30 c.c.—Parke-Davis No. 162) gave the best results.

A general examination is given every patient including a urinalysis and Wassermann. The Trendelenburg test is also made to determine the efficiency of the deep circulation. The contraindications are severe diabetes, marked cardio-vascular-renal disease, septic thrombo-phlebitis, and pregnancy toward the latter half. One should be on guard for deep femoral thrombosis with compensatory venous circulation. If syphilis is present, salvarsan may be given into one of the varicose veins. This will aid in their obliteration.

After the examination the patient is made to expose the legs and stand while holding to a chair or rail, and the whole area of the varicosities is sterilized with iodine and alcohol. The most prominent low vein is injected. Under sterile technique, while using an ordinary hypodermic syringe and needle, the solution for use is drawn into the syringe and the vein punctured in the usual fashion. The skin prick should be all the pain experienced by the patient. Immediately, if the needle is in

the vein, blood appears in the syringe. About one-half c.c. is injected and the plunger released. If the needle is still in place blood will flow again in the syringe. This is a safeguard against perivenous infiltration. This is repeated until the syringe is empty. Make firm pressure over the point of the needle, withdraw it, and allow the patient to lie down on a nearby table. About two c.c. of the quinine-urethane solution are used for each vein injected. The number of injections would naturally vary according to the extent of the varicosities. If there is pain or swelling during the injection, the needle is left in position and three or four c.c. of distilled water injected to dilute the solution, which may have escaped in the perivenous tissue. The entire leg is tightly bound and the patient is allowed to go about his or her daily routine in ten or fifteen minutes. These injections are given about once a week. One, two, or three veins may be injected at the time. Veins over bony prominences, such as the shin and malleoli, should not be injected at all, or the quantity of the solution should be reduced because of the proximity of periosteum and the persistent pain which results if there is perivenous spilling.

The substance when injected immediately causes an irritation of the intima of the vein. There is an intimal hyperplasia, or in reality, "a chemical venous endoarteritis." A firm clot is formed which secondarily is organized into a dense, tenacious thrombus held together by fibrous tissue. This gradually occludes the lumen of the vessel. This chemically obtained thrombus is characteristic and its nature should be contrasted with the infectious thrombus. One is produced by sterile chemical means, is hard and densely adherent and has no tendency to separate, while the infectious thrombus is soft, and, because of bacterial lysis, there is a tendency to dislodge and cause emboli.

Objections have been raised against the injection treatment of varicose veins because this method at first appears unscientific and non-surgical, and because theoretically embolic deaths may result, or there may be sloughing and sepsis at the site of injection. As for the sloughing, the proper technique would eliminate this objection, and, of course, one should proceed with sterile precautions. McPheeters and Sicard have proven that it is scientific and



that the circulation in varicose veins is actually reversed or centrifugal, and on account of this reversal and tenacious nature of the thrombus, embolic deaths are very, very rare. As for the embolic deaths as a complication, they speak for themselves. Theoretically it is a complication, clinically it is not. Sicard, in the Necker Hospital Clinic, in Paris, reports 300,000 injections with no deaths. McPheeters showed that surgical excision had eighty times more embolic deaths than injection. Hope Carlton states that there is an embolic death in every 100 surgical resections of varicose veins. We have had no complications of any kind and our results have been very satisfactory.

A comparison of the injection treatment and surgical resection of these veins is very interesting. With injection there is no hospitalization, no loss of time, no incision, no disfiguring scar, no anesthetic with its complications, it is not as expensive, and is eighty times safer from embolisms.

Carlton also said, "There is no operation the passing of which will be less regretted than the surgical excision of varicose veins."

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### THE CHEMICAL OBLITERATION OF VARICOSE VEINS.\*

By FRANK HELVESTINE, JR., M. D., Roanoke, Va.

Varicose veins are far more common in women than in men, a result of the special obstructing influence exerted by the pregnant uterus on the veins. In a third of the cases due to pregnancy the affection is bilateral according to Jasche and, when unilateral, or more marked on one side than the other, the veins of the right leg suffer more, probably on account of the tendency of the gravid uterus to rest on the right side of the pelvis. Varicosities of the veins of the legs, with their various complications, are so common in women that the affection may well be included in the list of gynecologic diseases.

The idea of the obliteration of varicosities by the injection of chemicals into the lumen of the veins is by no means of recent origin, but, because of the strong caustic and toxic action of the chemical substances used, the method fell into disrepute and was not revived until 1911, when Blum, Linser, and Sicard, working independently, each with a different chemical substance, noticed that the basilic vein after several injections would become thrombosed and obliterated. Sicard, following up his observation, found that he could, by using small amounts of a 20 to 40 per cent solution of sodium bicarbonate, obliterate varicosities without untoward results. Later, Sicard used sodium salicylate for his injections because of its less caustic action. Since the work of Sicard and his associates, of the Marseilles School of Medicine, the treatment of varicose veins by the injection method has been steadily gaining in popularity; the technic has become perfected, a number of chemical substances of decreasing toxicity and irritability are being introduced, and the indications for the use of this method have been broadened.

The substances used in this country at present for injections include sodium chloride, sodium salicylate, glucose, and quinine and urethane. All of these substances in the strength used are irritating and painful if imperfect technic is employed and the chemicals

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

allowed to infiltrate the tissues about the veins. Sodium chloride and sodium salicylate under these conditions cause sloughs with accompanying ulceration. The last two solutions mentioned, glucose, and quinine and urethane, cause a painful chemical inflammation under the above circumstances, but rarely if ever cause sloughs. The results obtained from the injection of glucose are uncertain, while the proper injection of the other three substances generally causes the desired reaction and obliteration. Certain persons have idiosyncrasies to salicylates and quinine, so that in using these substances the dose used for the initial injection should be small.

In my own practice, I have used quinine hydrochloride and urethane solution (quinine hydrochloride—0.266 gram, and urethane—0.133 gram, dissolved in 2 c.c. of distilled water) exclusively. As an initial dose, an injection of 0.25 c.c. of this solution has been used, and never more than 2 c.c. has been injected at one treatment. Treatments have been carried out twice a week.

The apparatus required is simple and inexpensive: A 5 c.c. Luer syringe and a 26 gauge needle. A good syringe and a sharp needle are indispensable, because an intravaricose injection is much more difficult than an ordinary intravenous injection, and it is absolutely necessary to possess a perfect technic to avoid the escape of a small amount of the irritating fluid from the vein into the tissues at the time of injection.

Preliminary to the treatment of any patient, a history should be taken and an examination made to exclude any contraindication to this particular method of treatment. The history of a post-operative or post-partum phlebitis is of the utmost importance. The circulation of the affected extremity must be tested. The pulsation of the femoral, popliteal, posterior tibial and dorsalis pedis arteries should be investigated, particularly in older persons. The state of the venous circulation is tested by Trendelenburg's method. If the deep veins are thrombosed and the superficial veins have undergone a compensatory hypertrophy, they should not be attacked. Pregnancy, menstruation, uterine fibroids, severe nephritis, myocardial degeneration and extreme old age are distinct contraindications to the injection treat-

ment of varicose veins with quinine and urethane.

The posture of the patient may either be standing, sitting, or horizontal to suit the convenience of the operator when treatment is being given. In a standing position, the varicosities show up most prominently.

It is well to shave the limb and strict asepsis is to be maintained after the site chosen for injection has been cleaned with iodine and alcohol. Usually the varices nearest the malleoli are chosen as the site for the initial injection. The needle is inserted carefully with the bevel away from the skin surface. It is very easy to tear a thin walled varicosity or, by meeting only slight resistance, to plunge the needle entirely through the vein. On both sides of the needle at a distance of several centimeters the vein is compressed by the fingers of the free hand and blood is aspirated before injection is begun. After injection, the needle is held in place for a minute, pressure is applied by a large sponge or ball of cotton saturated with alcohol, and the needle withdrawn. An adhesive strap is then applied over the sponge to maintain pressure and keep any of the fluid from escaping from the vein. This is left in place for forty-eight hours. An elastic stocking or elastic bandage worn during the course of treatment aids materially in the results.

Injection is rarely, if ever, carried out below the malleoli, as any varicosity in this region, after injection higher up, becomes smaller and is as a rule symptomless. From the malleoli upward, the whole saphenous trunk may be treated even to within four or five inches of the saphenous opening. The number of injections required varies directly with the extent of the varicosities. In cases with ulceration, care must be taken not to inject too close to the ulcer, if it is acutely inflamed. A supportive treatment is important in these cases to obtain the best results.

Venous obliteration is not caused directly by coagulation of the blood, but thrombosis occurs secondarily to the inflammation of the intima of the vessel which has come in contact with the irritating chemical. The clot produced has been shown to be quite different in character to that following an infective process in a vein. It is in intimate contact with the inner coat of the vein, solid throughout and decidedly leathery in consistency. Within



twenty-four hours it is firmly attached to the wall of the vessel (Meisen). Organization is complete in from two to three weeks.

Following the injection of quinine and urethane solution, a section of vein for about 4 c.m. on either side of the site of introduction is involved. This region, the following day, is slightly swollen and on palpation appears as a rather firm tender cord. Later, as organization takes place, this cord shrinks in size and becomes fibrous.

Reactions and complications are due usually to faulty technic in injecting, an overdose in a thin wall vessel, or a leakage after the needle is withdrawn. All of these conditions cause an inflammation of the perivenous tissue which is very painful and is best relieved by hot applications. Hematomata are often seen, due to the leakage of blood into the tissues. After the insertion of the needle, there is practically no pain, but at times the patients complain of a burning sensation and a feeling of fullness in the vein. The day following a treatment, there is usually some stiffness and soreness in the limb with tenderness along the course of the vein at the site of injection. One of my patients was nauseated and vomited about an hour after the injection of 2 c.c. of quinine and urethane solution.

Theoretically, following such a method of treatment, the danger of embolism is ever present. However, Tavel and Bernheim state that they have never observed a fatal embolism from a thrombus in a superficial vein. McPheeters and Rice, in their search of the literature, found a report of seven deaths in about 53,000 cases in which the injection treatment was used, a mortality of .002 per cent.

The obliteration of varicose veins by chemical agents has many advantages over the operative treatment of this condition. The method is practically painless, the daily routine of the patient is not interfered with, the indications are practically the same, and the results are as good, if not better. There is not the risk from anaesthesia and the danger of embolism appears from statistics to be much less from the injection treatment than from the operative. In the patients whom I have personally treated, there has not been time as yet for recurrences, but if such occur in the course of time, it will be a simple matter to reinject, and they have been so pleased with the relief

afforded by this easy procedure that there will be no hesitancy in returning for any correction necessary.

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#### MacBain Building.

#### DISCUSSION OF PAPERS BY DR. DANIEL AND DR. HELVESTINE, ON VARICOSE VEINS.

DR. T. J. HUGHES, Roanoke: This subject has been so well covered by the essayists that there is really not much left for discussion. It is very evident from the statistics that have been related that we have been using this method of obliteration of veins for a great number of years, but I do believe that we were obliterating veins when we were not conscious of it and that this excellent method of treating this condition was an evolution of the intravenous treatment of many other conditions. You know in treating syphilitic conditions by the use of irritating substances and in treating other conditions you have found that after using a certain vein several times, you could not get that vein. No doubt you had obliterated it. So I believe this excellent mode of treatment is the result of a coincidence in treating other diseases.

There is just one thing I do not recall having been brought out in the two papers which I think is very important, and that is producing pressure on either side of the area injected so as to confine the solution to a limited area in the vein. I do not recall that that point was brought out in the papers. This pressure on either side of the point of injection should be made and continued for from two to five minutes, so that the venous pressure at that particular point will be exaggerated and the intima of the vein will not only be irritated but in a great many instances completely destroyed. That is the reason that the clot forms so quickly and adheres so tenaciously to the walls of the vein and obviates the danger of pulmonary embolism. After this method of treatment was discovered, we were afraid to use it for a time, thinking there was more danger of embolism, but it has been shown that the danger is very much less than the danger of embolism in a surgical operation.

DR. LEWIS ANGLE, Johnston-Willis Hospital, Richmond: Dr. Daniel and Dr. Helvestine, as well as Dr. Hughes, have covered the entire field, I think, in the treatment of varicosities. In the past year I had the pleasure of doing some experimental and also some clinical work under Dr. John Staige Davis, of Johns Hopkins. In the experimental work we found that if we used a solution of fifty per cent glucose and thirty per cent sodium chloride, equal parts, we would get a firm thrombosis, much superior to any we had used and far better than the common injections we use today. This was proven experimentally and clinically. We used dogs for the experiments. We tried to approximate the condition of varicosity as nearly as we could. This proved very satisfactory clinically in a series of over five hundred cases.

In the injection treatment, Dr. Hughes has brought out, in my mind, the chief fact that you want to get the injection fluid in direct contact with the intima of the vein wall and let it remain there as long as possible. The various men who are doing this work, Meisen, in Copenhagen, McPheeters, in Minneapolis, Sicard, of Paris, and other men, all use various methods. In New York, especially, they use a method by allowing the patient to stand up. I notice Dr. Helvestine used the same method. We tried that, as well as other methods, and when the patient could not stand up we let him lie down.

In conclusion, we found that most satisfactory results were obtained by the following procedure: We let the patient lie down, thus emptying the vein, and ligate it, leaving enough blood in to determine the position of the needle, then inject the vein, putting firm pressure over the needle, allowing it to stay for several minutes, and letting the tourniquet remain for from five to twelve or fifteen minutes, depending on the size of the vein; next remove the tourniquet and put a firm pressure bandage up to the knee, which is to stay on anywhere from twelve to fifteen days after the operation.

In using a solution of fifty per cent glucose and thirty per cent sodium chloride, mixed in equal parts, we found two great advantages which were most admirable. There is no cramp or pain during or after injection; and in case of faulty injection, if your needle has slipped out of the vein, or in case you have a ruptured varicosity in a small vein, you do not get a slough. In our series of over five hundred cases we did not have an embolism, and in no case did we have a complication.

DR. HUGH TROUT, Roanoke: There has been recently a rejuvenation of the injection method which was popular with the French surgeons about twenty-five years ago. Several years ago I visited the various men who were then advocating the injection method of treating varicose veins. The method has a definite place in the treatment of varicose veins, but, I think it is time for us to say and to say very frankly that it has its limitations. It is not a practice to be followed without first having a very careful history and general examination of the patient made. There are some places it has been done without any examination of the patient except the leg, and unfortunately only a few "accidents" have been reported.

One thing that impresses me in the various clinics I have visited, is that many of the doctors in these clinics speak of "two or three thousand cases." However, when you analyze that statement it comes down to several hundred patients each having about ten injections.

The solution does find those little intercommunicating veins much better than the surgeon can. In the recent varicose veins, without any history of infection, I think undoubtedly the injection method is a distinct advance and has definite advantages over surgery. My experience has been confined largely to the cure of so-called "varicose ulcers." In a series of thirty-three cases of large varicose ulcers, there have been only five of those that have not been cured. All of those thirty-three cases have been operated upon, or injected previously, so one cannot state the injection method has caused the ulcer. Unless you are very careful you are going to inject some cases that will have had a phlebitis and produce a recurrence of the infection. There are now many different solutions employed, and it is to be hoped one or two solutions will soon become standard and thereby dissipate much of the

skepticism which now exists because of the multiplicity of the solutions, the percentages, and the methods, etc., advocated.

Do not think that a varicose ulcer is an ulcer in the sense that its existence is dependent on the varicosity of the vein alone, for a "varicose ulcer" is an ulcer that is dependent not only on the varicosity of the vein, but also on the blockage of the lymphatics.

As you all know, in these varicose ulcers, the legs are very greatly swollen, almost like an elephantiasis. In those cases, one cannot find a vein to inject, and therefore the injection treatment of such cases is out of the question. Also, if one should find the veins he is likely to increase the lymphatic block, and do more harm than you can possibly do good. I think it is extremely dangerous to try to inject those cases in which there is an ulcer associated with a varicose vein, especially, if there has been any recent history of infection.

Time will show whether the injection of a simple varicose vein will not cause a lymphangitis at a later date. The injection method, except in well selected cases, however (I emphasize "well selected"), is certainly not a procedure to be done in the office without a thorough general examination and a careful history of the patient, but, it certainly has a very definite place in surgery.

DR. DANIEL, closing the discussion: I appreciate the discussion by these gentlemen and I am grateful to Dr. Helvestine for his pictures, which so vividly described the technique and results of the injection.

The position of the patient during the injection, I think, is very important.

The use of the tourniquet I would think is unnecessary, because the venous blood in varicosities does not flow up the leg. In fact, the flow is reversed.

I am glad Dr. Trout spoke of the ulcers. I find that in nearly all ulcers, where there is not so much edema, if you can find a "leader" to that ulcer—or, rather a "drainer" from that ulcer and if that is injected and sclerosed, the ulcer will heal twice as quickly.

The thorough examination of the patient is most essential. If there should be a deep femoral thrombosis from typhoid or following childbirth, occlusion of the compensatory superficial venous system would do untold damage.

DR. HELVESTINE, closing the discussion: I want to thank all these gentlemen for their kind discussion.

I do not know that I have anything to add to what has been said, except about the posture. I think the easiest way you can do a thing is the best way. If by putting a patient down on the table you can inject him better, put him on the table; if you can inject him better if he sits down, why sit him down. Most of my patients stand. Use the easiest way to get into the vein.

Usually the reaction around the vein involves about four centimeters on the side of the site of injection. When that patient comes back at the end of a week, for the second injection, we have a cord there that is very firm.

As I said, there are certain contraindications to this treatment. I think one that has not been mentioned is the possibility of some obliteration of the arterial circulation. I think it is very important to palpate the femoral, popliteal, posterior tibial, and dorsalis pedis arteries. All these cases should be very, very carefully examined as to the history and as to the circulation before anything is done.



## ARACHNIDISM. REPORT OF A CASE SIMULATING DIFFUSE PERITONITIS.\*

By W. LOWNDES PEPLE, M. D., Richmond, Va.

The patient was a strong, robust, healthy boy of six, who, except for the diseases of childhood, had had no previous illness of consequence. On May 1, 1929, he was perfectly well, ate breakfast and dinner but went to bed supperless because he fell asleep. At about seven o'clock on the morning of May 2nd, he ate breakfast consisting of bacon and eggs, bread and milk, and seemed perfectly well. Shortly after breakfast he got on his pony and rode with his father to a nearby field where his father had plowing to do. The boy got off of the pony and began playing about in some newly cleared land. About eleven o'clock he ran to his father crying and said a bee had bitten him on his thumb. He went to the house and had his mother wrap a rag around it and was back in three-quarters of an hour. After playing a while on the edge of the field he began to cry with pains, first in his back and then in his abdomen. The pain grew worse so rapidly that the father took him to the house and sent for Dr. W. W. Wilkinson who saw him at 12:20 P. M. just one hour and twenty minutes from the time the insect had stung or bitten him, and not over thirty minutes after the onset of symptoms.

The doctor stated that he found the child with agonizing pain in the abdomen, which was distended and of boardlike rigidity. The tenderness was general but not marked. His temperature was normal, his pulse was 120, and he soon became nauseated and vomited. The thumb was neither tender, red nor swollen and he only found out about the insect bite by asking why the thumb was wrapped up. Dr. Wilkinson said the case looked like one of diffuse peritonitis from some such cause as a ruptured appendix or perforated ulcer of the duodenum. As the distention became greater and the rigidity more marked an S. S. enema was given but with only slight result and no relief of symptoms. It was then decided to bring him to Richmond for consultation, and one-tenth of a grain of morphine was given to relieve the pain which was excruciating. He was nauseated throughout the trip and vomited repeatedly, the vomitus consisting of the un-

digested egg and bread he had eaten for breakfast. When he reached St. Luke's Hospital, about 4 P. M., his pain had been almost entirely relieved by the morphine from which he was quite drowsy. His temperature was 99, his pulse 110. He had 20,000 leucocytes with 89 polys. He was tender all over the abdomen and was quite rigid with moderate distention. The rigidity seemed a little more marked on the left than the right side. Dr. Wilkinson stated that the whole picture had been greatly modified by the morphine, as neither the rigidity nor distention were anything like so marked as before it was given. A specimen of urine could not be obtained.

Upon close questioning as to the kind of insect which had bitten him the child insisted that it was a bee but said it was a black bee that had no wings and that he had picked it up off the ground. Here was a robust child perfectly well and in an hour and twenty minutes presenting a picture of diffuse peritonitis. Children do not have duodenal ulcers so it would have to be a volvulus, an intussusception or a ruptured appendix. The onset was too violent and the development of the symptoms was too rapid for any of these. It was decided that the insect was a black spider and not a bee and the case was one of arachnidism and not peritonitis. He was given glucose and soda by rectum; also every four hours 5 grains of calcium lactate and 2 teaspoonfuls of milk of magnesia.

Next morning, May 5th, his nausea and vomiting had stopped, his abdomen had gone down and lost its rigidity and tenderness. His white count had dropped to 12,000 and his polys to 82. His urine, gotten for the first time, showed acetone and diacetic acid but was otherwise negative. On the following day, May 6th, he left the hospital apparently perfectly well.

Arachnidism or the poisoning from spider bite is neither well known nor is its prevalence appreciated in this part of the country. My recognition of this case was due to having heard of two soldiers with similar symptoms who were brought to the Memorial Hospital in Richmond, from a nearby camp, about twelve years ago, during mobilization. I had also heard Dr. J. Bolling Jones, of Petersburg, Va., in discussing a symposium on abdominal pain say that one very important cause had

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

been omitted by all the essayists, and that was spider bite. He then reported the case of two colored men with violent abdominal pain as a result of spider bites on their genitals, received while using an outdoor privy. I also recalled a report of one or more cases, in a journal of recent date which I could never locate, of operations on cases of arachnidism, believing them to be diffuse peritonitis.

Dr. Emil Bogen, of Los Angeles, has collected 150 cases, and with Dr. Phoebus Berman has reported in detail fifteen cases treated in recent years in the Los Angeles General Hospital. Their papers fully cover all the details of this interesting and, to most of us in this section, rather novel condition.

abundance in California than elsewhere for of the 150 recorded cases more than two-thirds of them were from that state.

The first recorded case of arachnidism was described by Dr. Adner Hopton, Clinton, N. C., just 100 years ago, and the first recorded death from this cause occurred in the same neighborhood and was reported by John M. Dick in "Insect Life," January, 1889. Some twenty or more recorded cases are of men bitten on the genitals in outdoor privies.

When the bite is received there is a sharp sting at the point of injury but usually little or no local swelling, pain, or tenderness. Within an hour the patient develops pains in the back, legs, and abdomen. This increases



Fig. 1.—The black widow.

Fig. 2.—Turned on her back, showing the marking or dot under the belly. This is usually bright red.

Fig. 3.—The male spider. Taken from Nature Magazine, September, 1929.

The offending insect is the *Latrodectus Mactans*. Only the female is poisonous, showing that Mr. Kipling's assertion that "the female of the species is more deadly than the male," holds true of insects as well as humans. She is shiny black in color, with red or yellow markings under her belly. These marks vary in shape but the most usual is a bright red dot. She is called the black widow from a playful little habit she has of devouring her husband. She is also known as the hour-glass spider, the shoe-button spider, the T-dot spider, and the po-ko-moo. She is often half an inch in length when fully grown. She is found in dark places such as stump holes in newly cleared ground, under stones and pieces of old wood, in dark corners of little used buildings. Though the black widow infests the Southern States, she has been reported as far north as New Hampshire. She flourishes in greater

in intensity until the patient is often in agony. The abdomen is of boardlike rigidity with generalized pain. The tenderness is slight or absent. There is usually vomiting. The temperature seldom goes to 100, and often is not elevated. The pulse is rapid in nearly all cases. The white blood count is usually high, often going to 18,000 to 20,000 with a poly count of 80 per cent and over. The symptoms reach their acme in a few hours and gradually subside. This may be a matter of a few hours or several days. Some cases are mild in character and some severe. There have been twelve deaths reported.

The safeguards in avoiding a tragic mistake in diagnosis are the precipitate onset; the lack of marked tenderness, and its failure to localize; the low or absent febrile reaction.

TREATMENT.—This has included a variety of measures, mostly empirical. Morphine or its



equivalent in the early stages is almost imperative. Next, glucose and soda by rectum or saline under the skin to combat the acidosis of starvation and continued vomiting. Dr. Bogen<sup>1</sup> tells of the use of a convalescent serum which they have used in several cases at the Los Angeles General Hospital, with encouraging results.

From conversations with a number of doctors from Virginia and North Carolina, I am convinced that this condition is far more prevalent than one would believe, and that case reports and discussions would be helpful in making it generally understood.

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*McGuire Clinic.*

#### DISCUSSION.

DR. P. B. BARRINGER, University: Less than two years ago I lost a grandson. He had been walking in the garden at sundown, holding his father's hand, when he complained of intense pain in the popliteal space. Nothing was found, neither snake nor spider. He was taken into the house, and physicians examined and treated him, but at the end of exactly twenty-four hours he died.

I had in my youth taken a fair amount of interest in insect life and had a reasonable knowledge of the spider. Naturally, however, I began to extend it. I got Comstock's work, which all workers in that line know, and I began to look into the reports in different journals. Whensoever a spider man speaks of *Latrodectus*, he speaks depreciatingly of its toxicity. I think the first report was made in 1889 by Riley and Howard. In that whole series of reports the spider was identified but one time. In Arkansas the professor of entomology in some institution had five students and himself bitten. A reaction occurred in only two, one slight and one rather serious. Now I believe I have run upon a possible solution of this mystery. In the first place, there may be other things than spiders; it is not yet proven, by any means, that the spider is alone. But if the spider is alone, as our friend said, it varies immensely in toxicity.

Henri Fabre was an old French peasant. He began to study insect life and made such contributions

that the world will ever be indebted to him. In his ninetieth year he joined the French Academy. Among the things he studied was the "devil's walking stick," you all know that insect. Not only does the female devil's walking stick eat her husband, but Fabre has found cases in which seven or eight husbands were eaten. I remember what old Cannon, in Utah, said about polygamous marriage to Senator Hoar, of Massachusetts. He said: "We treat them exactly in Utah as you treat them in Massachusetts, but we drive them abreast and you drive them tandem." Now, we have a tandem series here. It may be that *Lactrodectus mactans* eats more than one husband, and it may be that the toxicity is dependent upon the conjugal diet. I have not had the opportunity (I see poorly), to look into the records, but if you will study the season or period of bite, of toxic bite, as compared with the period of relatively non-toxic bite, you will find whether my hypothesis is true or not, because the breeding season can hardly be over three months. I think the three months of August, September, and October would cover the great majority of these cases.

I was glad to hear the reference to the California series, but remember that the *Lactrodectus geometricus* (?) differs somewhat from the *mactans*. It is a little larger, is grayer, and it seems that its toxicity is a little more constant, which would coincide exactly with the climate—that is, the longer season in California and Arizona.

I am very glad the attention of this body has been called to this mystery and menace, and I hope that the two can in time be separated by some member of this body.

DR. W. A. BRUMFIELD, Farmville: I want to attest to the comparative frequency of this. I have known myself of four cases of this arachnidism; two of them were in members of my own family. One of the four cases occurred three years ago, a case of a bite on the genitals in an outdoor privy. I think in every one of the four cases there was a short period of delirium and unconsciousness.

This professor of entomology that Dr. Barringer referred to tried out a tarantula on mice and English sparrows and students and himself, I believe the order was, without getting any of the fearful reactions commonly thought to result from a tarantula bite. In the case of the *mactans* he did not try it out on the smaller animals at all. After some hours of very intense suffering, during which he was conscious, he was taken to a hospital and came to himself there, a few hours later.

This insect is exceedingly common. Out in the fields, in old stumps or under stones or pieces of wood that have lain there for a long time, or under shocks of wheat or oats, it is very common. It happens not to be a very aggressive insect, which is the only reason we do not have many cases of arachnidism.

DR. W. W. WILKINSON, LaCrosse: I think this subject is one that will interest the country physician more, because we see more of it in the country than they do in the cities. As Dr. Peple mentioned, a large number of these bites are in the country in dry closets. Recently, in Brunswick county, the County Board of Health has had dry closets installed. I am afraid the Board of Health will have trouble getting them used, because we have had two cases of arachnidism recently from using these closets. It is a good deal more serious than snake bite. I believe some of the houses that manufacture serum and vaccine should perfect some vaccine for it.

DR. P. B. BARRINGER: I want to say that openings under the concrete walks in the cities and towns furnish a perfect nidus for mactans. Where the rats travel these paths from house to house, they come up occasionally at the edge of the concrete, and there you will find the mactans. Don't worry; it is going to be transferred to the city.

DR. J. BOLLING JONES, Petersburg: At the meeting of the Tri-State Medical Association of the Carolinas and Virginia, someone read a paper on extra-abdominal conditions producing abdominal symptoms, which I think was one of the most important papers read at that meeting. I have seen three definite cases of arachnidism and I think one problematical. Two of these cases were white and one colored. They all occurred early in the morning. The men were all laborers, and the bites occurred at the time they went to the toilet just before going to work, when it was a little dark—about six or seven o'clock in the morning, when they could not see very well. The point of contact as given me by all three of these cases was on the end of the penis. I had figured that probably the symptoms would not occur in the abdomen unless there was connection with some nerve supply in the genital region, and I am delighted to know that Dr. Peple also found the abdominal symptoms in his case, where the contact was at the thumb. The characteristic thing about it is the suddenness of the onset. It is characterized by its sudden onset and then by its intensity. The initial symptoms in all these cases were the same—intense abdominal pain—most intense. I shall never forget the first case; the man was in agony, was drawn almost in a knot. He told me, without my asking, that he was sitting on the toilet and felt a little prick. He looked down but did not see anything, but he had felt a sharp prick. He forgot it for an instant but in a very short space of time was taken with the violent pain in the abdomen, which almost drew him in a knot. In other words, this thing enforces on us the necessity of getting a careful history. Dr. Peple said what led him right in this case was getting a careful history. I gave my patient an initial dose of morphin, which relieved him, and within a few hours his symptoms all disappeared. As I recall it, he had no vomiting at all, but intense pain and rigidity. Not very long after that I was called to another man with the same symptoms. He did not tell me anything about feeling a prick, but recalling the other man I asked him about it, and he said it occurred right after going to the toilet. I was called to the third case to operate for appendicitis. He was so rigid he could not hold himself straight, with intense pains in the abdomen. He had intense rigidity, intense pain, without any localization; had vomiting; had no fever. This case you will find recorded in the *New York Medical Journal* of about six or eight years 'ago. His symptoms persisted for about thirty-six hours before we could get rid of that intense rigidity. The funny thing about it is that it is rigidity plus distention, which is something unusual in perforation. Distention in actual perforation, to my mind, does not come on for six or eight hours. In this case there was also violent obstipation; it was very difficult to get anything through this man. He was not operated on, and all three of the cases recovered.

DR. PEPLE, closing the discussion: I wish to thank the gentlemen who have discussed this subject. I know nothing of insects, and I was very glad to hear Dr. Barringer's talk on this subject. He spoke of the men who deal with insects, belittling the

clinical aspects of arachnidism, and I think perhaps he has hit upon the cause of it. The insects are in captivity, are provoked into biting, and are perhaps off their usual feed. Another thing, the bites are usually on the finger and not on the thigh or some other region where the skin is soft, and perhaps less poison is injected.

I think the condition is far more important and far more frequent than we have any idea of, at first glance. Dr. Brumfield tells of several cases, and Dr. Jones of three. There was one point brought out, that of having swelling at the point of the bite. I read all of the reports by Dr. Bogen, and they are most interesting. Where the tissues are soft, there is often considerable local reaction. In Dr. Wilkinson's case, if the child's finger had not been wrapped up he probably would not have heard of it; the bite was regarded as a trivial thing. The violent pains in the abdomen, as well as in the back and thighs, occur even when the bite is on the finger.

### FRACTURE OF THE PELVIS, WITH REPORT OF A CASE.\*

By CHAS. W. PUTNEY, M. D., Staunton, Va.

Developments in industry, with a corresponding increase in accidents, during the last quarter of a century, have greatly increased the number of cases of fracture of the pelvis. It is to the credit of the medical profession that modern surgery has kept pace with industry. Prompt operative procedure, when indicated, in complicated cases of fractured pelvis, has greatly reduced the mortality. The suspension method, first used by Douglas P. Murphy in the U. S. Army, and popularized by Jopson<sup>1</sup> in 1922, is clearly illustrated and described by Scudder.<sup>2</sup> This method has made for the increased comfort of the patient, and improved anatomical and functional results in certain types of fractured pelvis. It is for the purpose of emphasizing this method that this paper was prepared, as it does not seem to be fully described in most text books on general surgery.

The pelvis is encircled in a hammock, or swathe, fastened to an overhead bar, placed just high enough to suspend the pelvis from the bed. This greatly facilitates the nursing care of the patient, and the patient's weight gradually produces and maintains reduction. The body weight can be counterbalanced by weights and pulleys, if so desired, and Buck's extension may be applied to the extremity, if the pelvis is tilted, and one fragment is situated higher than the other.

A classification of fracture of the pelvis is given by Sever,<sup>3</sup> in his excellent review of

\*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.



the literature, and report of cases, as follows:

1. Fracture of the ilium,
2. Fracture of the pubic arch,
3. Fracture involving the acetabulum.

Fracture of the pelvis should also be classified as:

1. Fracture of the pelvis, without complications,
2. Fracture of the pelvis, with complications.

tient has recovered from the shock of the operation.

Fracture of the pelvis is usually caused by violent force. This may be produced in many ways, too numerous to be enumerated here. It is often crushing in character, and may be either lateral or antero-posterior. Fracture through the acetabulum may be caused by falls on the feet.

**SYMPTOMS AND DIAGNOSIS:** There is a history of injury from violent force. The pa-

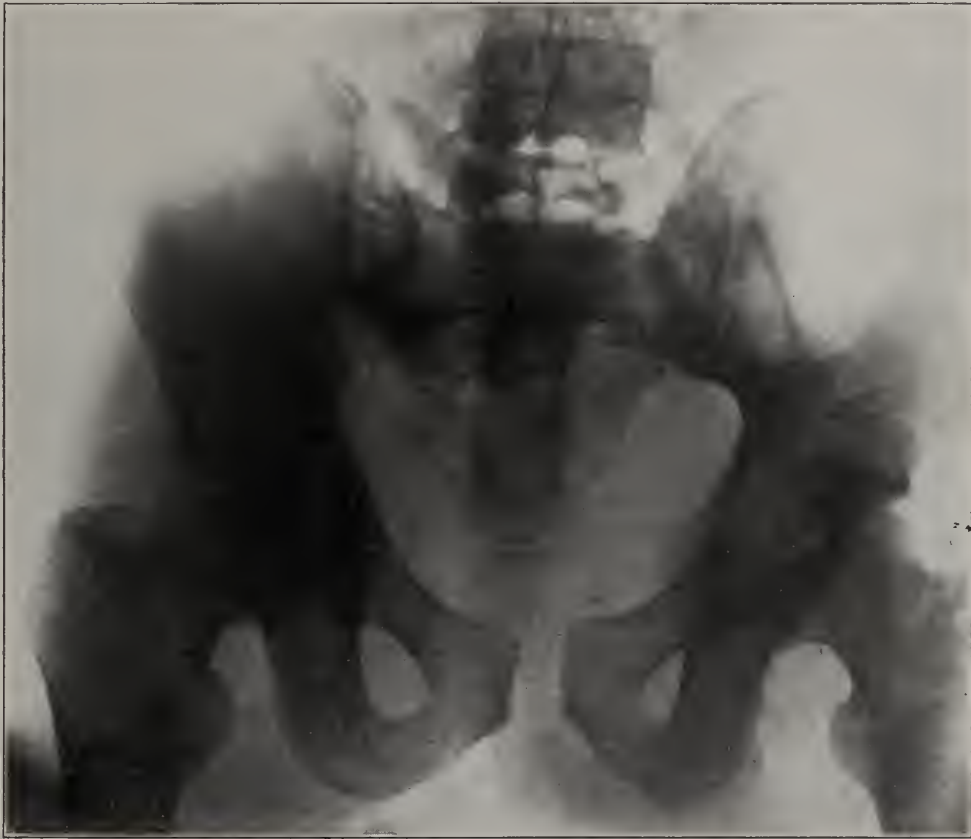


Fig. 1.—X-ray picture taken before treatment was begun.

The fracture itself may be of secondary importance, and the diagnosis and treatment of the complication may demand first place. Frequently one will find, upon careful examination, that there is injury to the bladder or urethra. Occasionally the rectum or vagina may be traumatized, or there will be signs of peritonitis, occasioned by the rupture of an intra-abdominal viscus which will demand an immediate laparotomy and repair. In such a case no thought of permanent fixation of the fracture should be entertained until the pa-

tient is in a state of shock, complaining of pain in the pelvic region, which is increased by motion of the lower extremities, and is unable to walk or sit erect. Mobility and crepitus may be detected, and ecchymosis of the inguinal, genital, or perineal region will develop after several hours. Careful search for the complications mentioned above, and the use of the catheter unless the patient voids, should immediately be made in all cases. The symptoms of the complications can be found in any text book on general surgery, and need

not be mentioned here. The Roentgen rays will reveal the nature and extent of the fracture.

**TREATMENT:** Determine the extent of the injury and treat the shock and the injury to the soft tissue first, if of serious moment. If there is evidence of beginning peritonitis, an immediate laparotomy should be done, and careful search made for the rent in the viscus which, when found, should be repaired. Should the bladder be ruptured extra-peritoneally, a suprapubic incision should be made, drainage instituted, and a catheter inserted and left in the urethra until healing of the incision is well under way. In male cases complicated by rupture of the urethra, a perineal incision should be made and a catheter should be placed

ture through or posterior to the acetabulum.

3. Fractures through the acetabulum should be reduced, under anesthetic if necessary, a plaster spica applied in the position of abduction, and provision made, if necessary, for Buck's extension, and lateral traction.

Fixation should be maintained for four or five weeks, then a pelvic belt or adhesive straps tightly applied, and the patient kept in bed another week before being allowed to use the rolling chair. Crutches may be used with very little weight-bearing, after the ninth or tenth week. Light work may be begun in three or four months. The time may be reduced in less severe cases.

**MORTALITY AND MORBIDITY:** Quain, reviewing the literature, found the general mortality

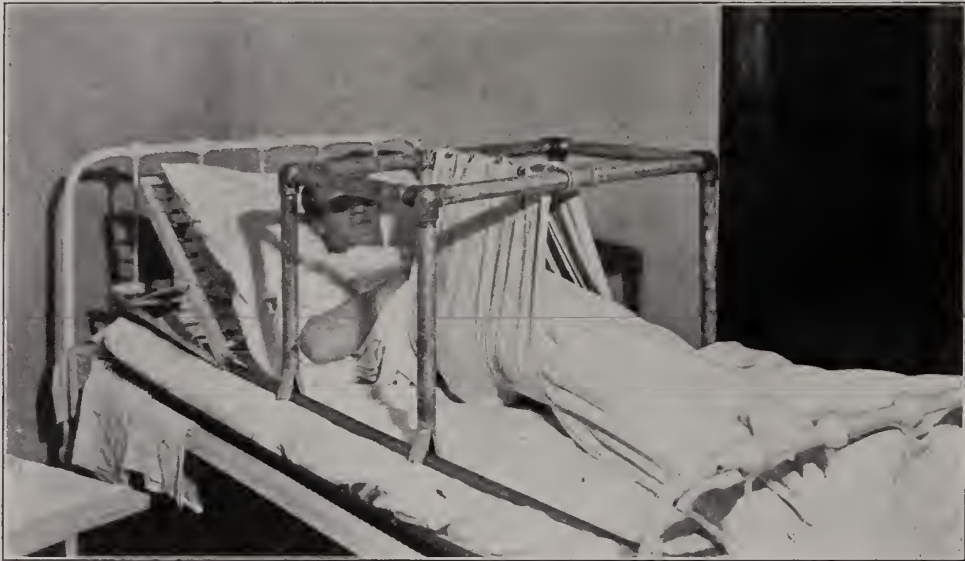


Fig. 2.—Photograph of patient suspended in hammock.

in the urethra, and free drainage maintained.

Treatment of the fracture itself can be carried out while the patient is convalescing from the complication, if any be present.

1. Fractures of the ilium do well with properly applied adhesive straps, or a pelvic belt, with rest in bed.

2. Fracture of the pubic arch is perhaps best treated by the use of the Jopson hammock, as described by Scudder.<sup>1</sup> The author is well aware that there are numerous cases successfully treated by the use of: the Bradford frame, adhesive straps, pelvic belt, or plaster-of-Paris; and that the Whitman cast is probably the best method in cases with frac-

ture to be 86.78 per cent of all cases of fractured pelvis reported previous to 1890, as was pointed out by McClanahan.<sup>1</sup> Hawpe<sup>5</sup> collected 127 cases from the literature, previous to 1917, complicated by rupture of the bladder, with a mortality of 74 per cent. It is interesting to note that Quain reviewed the cases reported between 1905 and 1916, complicated by rupture of the bladder, and found the mortality during that period was reduced to 38 per cent. There is reason to believe, at least to be hoped for, that progress in modern surgery during a similar period since that time has caused a further substantial reduction in mortality in the complicated cases of fractured



pelvis. Uncomplicated cases do not seem to carry a high mortality. Sever<sup>3</sup> reported fifty-one cases, one only having ruptured urethra, with only one death.

Functional results are usually good. Occasionally one will be left with a limp, and rarely will a patient develop a peroneal paralysis with a foot-drop to continue longer than a year.

#### CASE FOR ILLUSTRATION

Mr. E. M., white adult male, laborer, age 31, was admitted to the hospital May 7, 1928, complaining of pain in the pelvic region, and

The specimen of feces, which was secured a few hours after admission, did not show any evidence of blood. The patient was left quietly in bed, a fracture of the pelvis being strongly suspected. Symptoms of possible complications were kept foremost in mind, but none had developed when last seen that night. The next morning there was a well marked ecchymosis of the inguinal, genital, and perineal regions, but there was no evidence of abdominal rigidity or extravasation of urine. Roentgenological examination showed a wide separation of the symphysis pubis. A consultant was



Fig. 3.—X-ray taken after being suspended three weeks in hammock.

gave a history of having been caught under a gear wheel, which weighed 1800 pounds. He could stand with assistance but was unable to walk or sit erect. The pain was increased by attempts to move his lower extremities. There was considerable tenderness over the inguinal, genital, and hypogastric region, but there was no true abdominal rigidity or other evidence of beginning peritonitis. He was able to void freely, and the urine was negative for blood.

asked to see the case, and it was thought that the application of a plaster spica would be adequate. We applied the cast, with attempts at reduction, but re-examination with the Roentgen rays showed the same amount of separation as was shown at the previous examination; moreover, the cast was uncomfortable to the patient. After further consideration it was decided best to suspend the patient's pelvis in a canvas hammock, and, ac-

cordingly, after removing the cast, the patient was suspended in a hammock made by a plumber under my supervision. The patient was given a back-rest at a comfortable angle. He complained very little of the position, and remained suspended about three weeks, at which time Roentgenological examination showed complete anatomical reduction. Adhesive straps were tightly applied around the pelvis, the hammock was discontinued, and the patient was kept in bed another week. He was then permitted to use the rolling chair

open reduction will be an obsolete procedure, and the cast will be discarded in treating fractures of the pelvis, except in cases in which the fracture passes through or posterior to the acetabulum.

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*Professional Building.*

## DISCUSSION.

DR. A. L. TYNES, Staunton: My experience with fracture of the pelvis is limited entirely to having had the opportunity of seeing this one case with Dr. Putney, and I wish to say that the treatment with the hammock was so entirely satisfactory and so much more comfortable than the use of the plaster-of-Paris, which we had first applied, that I now believe that those of you who have occasion to treat such fractures would do well in the future, in this particular class of fractures, if you will discard altogether the plaster and treat your patients with the hammock from the beginning.

There is one feature in the use of the hammock which I noticed Dr. Putney failed to speak of, and that is the employment of a spreader. If you use the spreader it will prove in the majority of cases very much more comfortable than treatment without the spreader. It should be exactly the width of the patient's pelvis and the length of the hammock.

The hammock is not only much more comfortable and quite satisfactory so far as results are concerned, but it makes the sanitary care of the patient much easier, and this fact appeals not only to the surgeon but as well to the nurses attending the case.

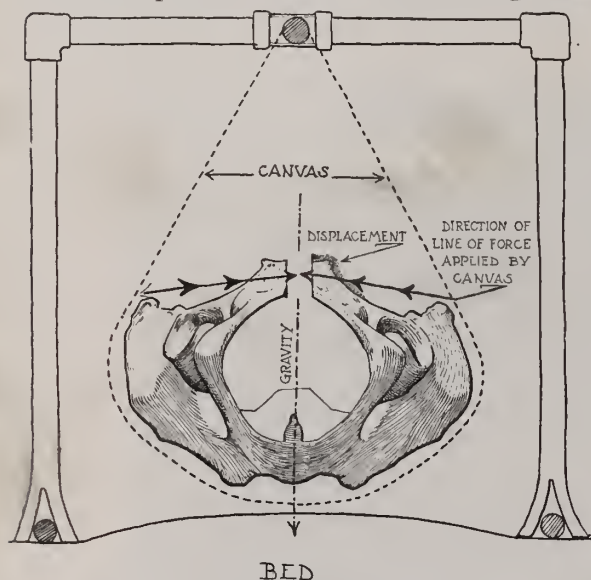


Fig. 4.—Diagram illustrating lines of force, produced by suspension of pelvis.

for a few days, after which he was permitted to use crutches and leave the hospital. On June 27, 1928, he returned to light work, sitting by and watching a gasoline engine. He was seen many times over a period of ten months, and has perfect functional results, now doing hard work every day.

COMMENTS AND CONCLUSIONS: The lines of force in the Jopson position, as shown in the accompanying diagram, are such that the patient's own weight produces and maintains reduction; the position facilitates nursing, and is not uncomfortable to the patient. It must not be overlooked, however, that a standardized method of treatment for all cases of fracture of the pelvis cannot be adopted, as the treatment must be adopted for the case at hand; and certain individual indications will occasionally arise. It is believed that with the proper use of the Jopson hammock, in widely separated fractures of the pubic arch,



## SYPHILIS OF THE CARDIOVASCULAR SYSTEM.\*

By H. H. HAZEN, M. D., Washington, D. C.

The increasing number of deaths from cardiovascular disease, the repeated observations that cardiovascular lesions are almost universal in syphilitic patients coming to autopsy, and the decrease in life expectancy of syphilitics are facts that are in accord. But it must not be understood that the majority of cardiac deaths are remotely due to the treponema, for that is certainly not true. However, enough deaths and disablements are due to syphilitic lesions of the heart and aorta to make study worth while.

There are a number of facts that are well known and generally accepted. These are:

1. Aortitis is usually syphilitic.
2. Syphilitic aortitis may involve the base of the aorta or the "supra-coronary region." If the base be involved the aortic ring is frequently dilated, although theoretically one might expect a stenosis. This dilatation is due to lack of muscle tone and destruction of elastic tissue. The coronary arteries are affected by narrowing of their orifices or direct disease in at least one-third of the cases. Aneurysm is nearly always syphilitic.
3. Pathologically, it is often impossible to differentiate between syphilitic and arteriosclerotic processes unless the causal organism or areas showing definite syphilitic pathology can be found. It is true that syphilis does not show calcification and that the process begins in the vasa vasorum of the media or even adventitia, but in the late stages certain diagnosis may be impossible.
4. A high percentage of coronary disease in persons under 40, and of aortic insufficiency at any age, is due to syphilis.
5. Mitral disease is so rarely syphilitic as to be negligible.
6. Acute syphilitic myocarditis is rare, but the chronic occurs in a high percentage of syphilitics; just how frequently it causes symptoms is a question.
7. There are two pathological pictures possible in syphilitic myocarditis, interstitial and primary of the muscle fibres. The second type is not in accordance with usual syphilitic pathology.
8. The diagnosis of syphilitic cardiovascular disease is most difficult; it must be assumed

rather than demonstrated in the early stages.

9. Sudden death is so frequent in aneurysm, aortic insufficiency, coronary disease and myocarditis as to warrant fear that the shock of an arsphenamine reaction may be fatal. Halley has shown the frequency in aortic insufficiency.

10. Stokes-Adams disease at times is due to a gumma of the bundle of His.

11. Treatment cannot be expected to repair a badly damaged aorta, an aneurysm, a dilated aortic ring or damaged valves, or to strengthen a heart muscle that is infiltrated with much scar tissue.

12. Hence it is always necessary to employ rest, light occupation, freedom from occasional heavy work or strain, and heart tonics such as digitalis.

The following disputed or undetermined points of interest:

1. The so-called milk spots of the corium are thought by Brooks to be due to syphilis and comparable to leukoplakia, but Adami believes that they are the results of intermittent pressure.

2. Aneurysm of the heart is apparently due to coronary disease (Karsner), but whether it is always syphilitic is a question. Brooks considers it the commonest cause.

3. The percentage of syphilitic arteriosclerotic aortitis is still a question.

4. The preceding question is complicated by the frequent impossibility of differentiating between the two forms, even microscopically.

5. The possibility of aneurysm of the aorta being non-syphilitic is related closely to the preceding problem.

6. The fact that arsphenamine relieves the pain of aneurysm makes one doubt that pressure alone can be the cause of such pain, as is usually asserted. It might be thought that the periarteritis would be relieved and pressure thus reduced.

7. The percentage of cases of syphilitic aortic insufficiency is undetermined, but is associated with the question of the percentage of luetic aortitis.

8. The ratio of syphilitic to non-syphilitic coronary disease is likewise doubtful, even though it be conceded that syphilis is not the greatest cause.

9. The cause of sudden death in coronary disease is not fully explained or rather made

\*Read before the University of Virginia Medical Society, October 4, 1929.

more doubtful by animal experimentation (Karsner).

10. The percentage of syphilitic to non-syphilitic myocarditis is questionable. A high percentage (85-90) of all syphilitic patients show myocarditis, but it is questionable if it is always due to syphilis.

11. The work of Warthin on the diagnosis of syphilis of the heart and elsewhere by means of demonstrating the spirochete, or of finding perivascular areas of infiltration with small round cells, has yielded such surprising results concerning the frequency and curability of syphilis that it would seem advisable to check up his remarkable results. It is doubtful if the type of pathology that he describes is pathognomonic of syphilis. One also wonders if his spirochetes are tissue fibrils or secondary invaders from the mouth.

12. Aortitis should be treated, but whether by arsphenamine or preliminary bismuth is a question. Wile fears that primary arsphenamine treatment may result in such rapid formation of scar tissue that compensation cannot take place. Schottmuller states that he has never had a bad result from arsphenamine and that all cases are curable.

13. The advisability of employing arsphenamine in aneurysm is questionable, there being fear of rupture in case of a Herxheimer reaction.

14. It is also questioned whether aortic insufficiency that can be recognized is ever helped. In fact, some excellent clinicians feel that the heart does not do well under arsphenamine.

15. Acute syphilitic myocarditis sometimes does well under intense treatment, but it is questioned by some men whether arsphenamine should be given.

16. In chronic myocardial disease the question of treatment is open to discussion,—the majority of clinicians opposing arsphenamine, at least until a preliminary course of mercury and iodides have been given. Reid states that there is danger of fibrillation because of (a) bad condition of heart muscle; (b) vagal stimulation; and (c) poor conduction, as shown by an altered T-wave of the electrocardiograph. Wile's views have been quoted.

17. The relation of the electrocardiograph to treatment of syphilitic cardiac disease is still questionable.

18. The relationship of syphilis to high blood pressure is also questionable.

Certain observations that the late Dr. H. P. Parker, Professor of Medicine at the Howard Medical School, his associates and myself were able to make may throw light on several of these problems. It should be remembered that the patients were practically all negroes.

1. In two cases of aneurysm of the heart, syphilis was present as indicated by history, clinical examination and laboratory reports.

2. In 145 consecutive cases of aneurysm, aortic insufficiency and supra-coronary aortitis, syphilis was present in all cases.

3. Following arsphenamine treatment and relief of pain in aneurysm, X-ray or fluoroscopic studies showed no diminution in the size of the growth.

4. Ten cases of supra-coronary aortitis were treated by arsphenamine with excellent results in nine, and no results in one.

5. Fifty cases of aneurysm were intensively treated by arsphenamine without a single bad result. In the patients we could trace the expectancy of life was markedly increased. The only fatality was in a patient whose aneurysm ruptured the night before treatment was to be begun.

6. Seventy-five cases of aortic insufficiency were treated—all late cases—and none showed either improvement or impairment of heart or general condition.

7. Two cases of acute syphilitic myocarditis were saved from death.

8. Eight cases of chronic myocarditis were neither hurt nor helped.

9. Two cases of heart block were cured.

10. Apparently high tension in young people who have not had malaria, scarlet fever or pneumonia, is usually associated with syphilis.

#### COMMENTS

The time to treat cardiovascular syphilis is before there are any symptoms or physical signs—that is before an accentuated or tympanic aortic second sound can be recognized and before an enlarged aorta can be recognized by the fluoroscope. It is generally agreed that prolonged early treatment is the best form of prophylaxis.

Once there are symptoms or physical signs, the patient's life must be properly regulated. It is always essential to have a physician thor-



oughly conversant with the heart to advise in these cases.

In aortitis it is probably wise to start with an initial course of mercury or bismuth and to follow with an additional course of a mild and well-borne arsphenamine. Silver arsphenamine can first be used, and then followed by neoarsphenamine in doses of .4g. to each 150 pounds of body weight.

Aneurysm cases stand arsphenamine remarkably well. The relief of pain is worth while, as also the increased expectancy of life.

Aortic insufficiency, once established, is not benefited, and may be made worse.

Acute myocarditis is particularly susceptible to energetic treatment.

Chronic myocarditis should be treated by an initial course of mercury or bismuth, later by small doses of arsphenamine if well borne.

1911 R Street, Northwest.

### SOME UNUSUAL PROBLEMS IN SURGICAL DIAGNOSIS: ILLUSTRATED CASES.\*

By T. JEFFERSON HUGHES, M. D., Roanoke, Va.

The diagnosis of surgical conditions present a field full of pit-falls and difficulties. It is, of course, not within the province of a short paper to discuss even a few cases at length.

A recent experience with a small group of cases which came under my observation impressed me with the difficulty one often meets in atypical surgical conditions, to the extent that I thought a brief report of these cases might prove of interest.

The differential diagnosis of many surgical conditions is, of course, subject to very fine discrimination, and it is often impossible, without exploration, to arrive at more than a conviction that we have an acute, sub-acute or chronic condition confined to certain localities requiring surgical treatment; or it may be that we often arrive at a rather positive diagnosis of one condition but recognize the probability of complicated or co-existing involvement of other organs.

It is among the most commonplace, and most easily diagnosed cases, that we make a wrong diagnosis. An acute perforated, gastric or duodenal ulcer may present a typical picture of appendicitis, provided the perforation is so located that the contents of the

stomach or duodenum trickle down the right side of the peritoneum, producing an inflammatory condition in that locality. Again, a diagnosis of appendicitis may have been made only to find a cystic tube or ovary, a slowly leaking ectopic pregnancy, or a kink or stone in the right ureter.

With modern methods and diagnostic advantages we are able to make classical diagnoses in a vast majority of cases, but the abdomen should always be opened with the consciousness that a change in diagnosis may be in order.

This group of cases, presenting different phases of surgical diagnosis, will illustrate some of the difficulties met in atypical cases; and one of the cases will illustrate how unusual a surgical condition may present itself even after you open the abdomen.

Perhaps among the most difficult surgical conditions to diagnose are those which appear in children. The interpretation of subjective symptoms in the child is difficult, and one must rely almost wholly upon objective symptoms and laboratory findings.

In the recent epidemic of infantile paralysis in Roanoke, one of the first cases fell into my hands, a little fellow about nine years of age who was visiting in Roanoke, his home being in Galax, Va. He came to the hospital with a tentative diagnosis of appendicitis. The child was extremely ill and could tell very little about his feelings. He was very nervous and vomited everything he swallowed; his little abdomen was markedly rigid, and the tenderness appeared to be more pronounced on the right side of the abdomen. The leucocyte count was 17,000; urinalysis was negative. A policy of watchful waiting was decided upon, and within a few hours stiffness of the neck and back was noted and the reflexes became greatly exaggerated. A lumbar puncture was done. The spinal fluid was under marked pressure and the cell count was greatly increased, showing 90 per cent lymphocytosis and increased globulin. A diagnosis of infantile paralysis was made. Paralysis of the respiratory organs rapidly supervened, and the child died thirty-six hours after entering the hospital.

We recently had under observation a case presenting typical symptoms of sub-acute salpingitis. After a few days' rest in the hospital she was allowed to return home until a

\*Read before the sixtieth annual meeting of the Medical Society of Virginia, at Charlottesville, Va., October 22-24, 1929.

more convenient time for her operation. Fortunately, her finances were such that, even though her condition did not apparently warrant it, she retained her special nurse and remained in bed at home. She returned to the hospital a week later for operation. Upon opening the abdomen, we were surprised to find an ectopic pregnancy which had ruptured, probably at the beginning of her illness, and the formation of a large clot controlled the hemorrhage.

Of three nephrectomies operated within a few days of each other, one presented the classical symptoms of appendicitis, and, according to the history, had never had a symptom referable to the kidney. It was interesting to note that our attention was directed to the kidney accidentally, before the routine urinalysis had been made. The patient was sent to the X-ray room by mistake, and the report was that she had a large irregular stone in the right kidney, whereupon a cystoscopic examination was made which revealed a co-existing pyonephrosis.

Another case presenting an unusual clinical picture was a young travelling man, sent in from the hotel suffering excruciating pain which radiated from the region of the right kidney over the entire right lower pelvic region with its greatest severity directed to the bladder. The entire right side of the abdomen was as rigid as a board. Two hypodermics of one-fourth grain morphine, given one hour apart, failed to give complete relief from pain. The leucocyte count upon entering the hospital was 10,400, with 80 per cent polys. The kidneys were absolutely negative for blood and pus. The picture was one of either passing a kidney stone or perforated duodenal or gastric ulcer, leaking down the right side. There was no previous history of stomach trouble and the patient had never had any kidney trouble. A second leucocyte count, one hour after the first one, was 14,000. Feeling that we could safely eliminate the kidney, an exploratory, high, right rectus incision was made, and an acutely inflamed appendix was the only pathological condition found. The appendix was not post-cecal, nor was it bound down by adhesions as one would expect from the symptoms in this case. Had the urinalysis revealed the presence of even a few blood or pus cells, an unfortunate delay in operation might have occurred.

A case of unusual interest was a young lady presenting a history of thyroidectomy seven years previously and a laparotomy three years ago. She had not eaten solid food for eighteen months, and had been bed-ridden for sixteen months. She claimed she could not eat without agonizing pains in the stomach and abdomen which often threw her into convulsions. Her nourishment for the past eighteen months consisted of peptonized milk in small quantities. She was extremely emaciated and obstinately constipated. The only pathological condition we were able to demonstrate was a fecal impaction which was evidently of short duration. Complete gastro-intestinal X-ray study revealed nothing abnormal, and gastric analysis was negative. No amount of persuasion could convince her that she could take food, and if, by firm insistence, she took a few bites of soft diet, she would apparently suffer agonizing pains in the stomach and bowels. For the lack of a more definite term, we made a diagnosis of psycho-neurosis, but after ample consultation we decided to do an exploratory operation. We found a few omental adhesions resulting from her previous operation, but they were not of such a nature that one would suspect they would cause any material inconvenience. She made a rapid recovery, and on the third day after operation began eating everything given to her; in fact, it seemed impossible to satisfy her appetite with the usual regular tray. She left the hospital in two weeks, able to walk and feeling fine, and she is now in the country enjoying perfect health.

The last case in this report will long be remembered because of the feeling of uncertainty after opening the abdomen. A world-war widow of the British forces, about thirty-five years of age, came to operation with a diagnosis of a large fibroid uterus. Upon opening the abdomen and delivering the tumor we were surprised to find a large, smooth, soft uterus, bluish in color, and presenting a typical picture of an eight months' pregnant uterus. You would have to be placed under similar circumstances to appreciate our dilemma. We lost but little time, however, in deciding to make a uterine incision, not knowing whether we were going to do a Cesarean section or a hysterectomy. The diagnosis of a large fibroid uterus was confirmed, and the hysterectomy was completed.



DISCUSSION.

DR. FRANK HELVESTINE, Roanoke: Dr. Hughes has given us a paper on a very important subject—the differential diagnosis of lesions in the abdomen. Those who do surgery know that this is very often most difficult; there are a number of pathological conditions that occur in the abdominal cavity, particularly on the right side, whose signs and symptoms are at times very confusing, and it is hard to differentiate and tell what the condition is. Very often, as Dr. Hughes reported, we even get within

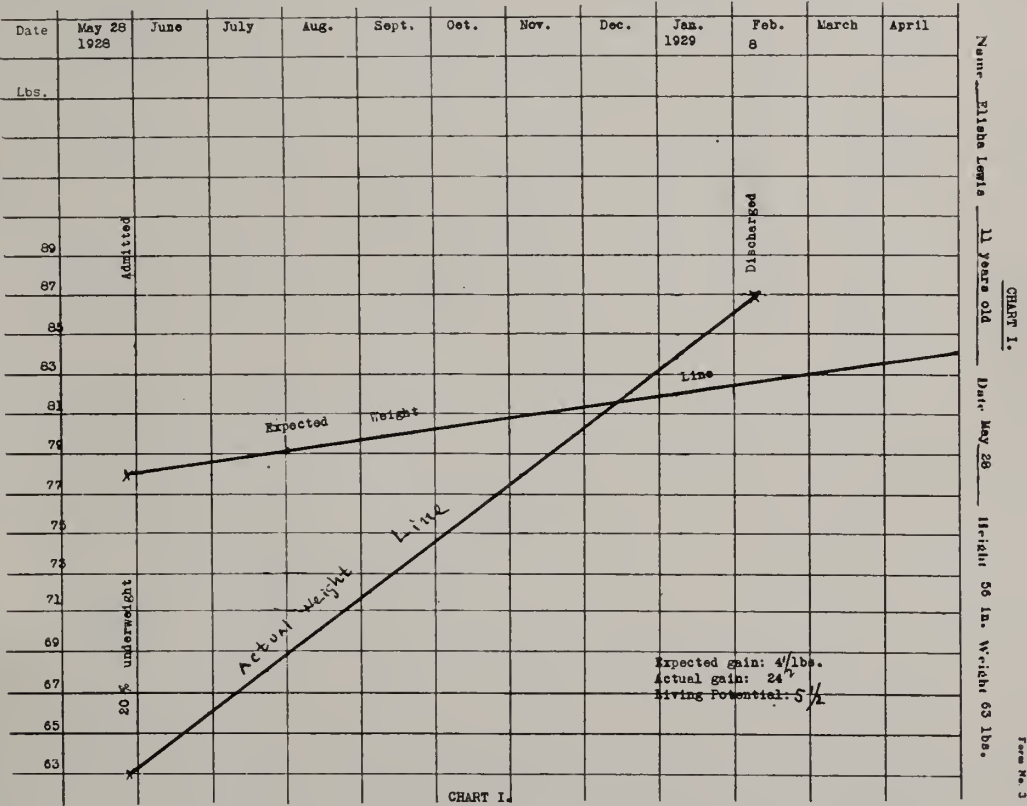
the abdomen, and then are up against it as to the diagnosis. I happened to see a case in New York this summer where the surgeon was confronted with practically identically the same condition Dr. Hughes showed. He thought it was a pregnancy and put it back. Only time will tell whether it was a fibroid uterus or pregnancy, as he thought it was. I enjoyed Dr. Hughes' presentation, and I think the cases which he showed were very instructive. As I stated, there are a number of conditions that are at times hard to differentiate, and a paper on this subject is always interesting and valuable.

A GRAPHIC PRESENTATION OF IMPROVEMENT OF NUTRITION IN A CHILDREN'S PREVENTORIUM.\*

By SAMUEL NEWMAN, M. D., Danville, Va.

For practical purposes, gain in weight in a certain unit of time may be taken as the best index of improvement in all cases comprised by the terms malnutrition, undernutrition or

bound to be fallacious for the fundamental reason that children of the same height and age will vary in weight not only because of *nurture*, that is, different food habits and different caloric value of the respective diets, but also because of *nature*; by this we mean the inherent hereditary differences. The clinical pic-



hypotrophy. The health status of a child is therefore determined by his height-weight ratio. The Balwin-Wood tables are probably the most commonly used in this country. It should be kept in mind, however, that any mathematical expression of the condition of nutrition is

future of the child must be kept uppermost in the mind of the examiner. From the standpoint of one dealing with larger groups of children, particularly in an institution, the accepted tables lend themselves very well for rapid review of the progress of the group as a whole. Since children in an institution are drawn practically from the same social stratum and are subject to the same

\*Read at the sixtieth annual meeting of the Medical Society of Virginia in Charlottesville, October 22-24, 1929.

factors, such as rest, exercise, diet and medical care, the whole group of children can be viewed as a unit for the purpose of comparing results

CHART I illustrates our procedure. The time period in months and the pounds of weight are simply laid out on the chart. The actual

CHART II.

NUMBER	AGE	RESIDENCE IN PRE-VENTORIUM		EXPECTED GAIN POUNDS	ACTUAL GAIN POUNDS	LIVING POTENTIAL	V. PIRQUET	MANTOUX
		YEARS	MONTHS					
1	9		2	1.5	2.5	1.66		
2	11	I		10.	22.	2.2	Positive	
3	14		2	0.	6.	6.	Positive	
4	13	I	2	3.	17.	5.66	Positive	
5	11	I		7.	17.	2.40	Negative	
6	15	I	4	28.	25.	Less than normal	Positive	
7	8		7	2.5	2.5	1.	Negative	
8	14	I	5	10.	14.	1.4		Positive
9	8	I	1	6.	23.5	3.75	Positive	
10	10		4	2	3.	1.50		Positive
11	11		6	4.50	10.50	2.33	Positive	
12	11	I		5.50	28.50	5.	Negative	Negative
13	7		3	1	1.	1.	Negative	Negative
14	10		1	0.50	2.	4.		Negative
15	13		0.5	0.50	1.	10.	Negative	
16	14		2.	0.50	9.	18.	Negative	Negative
17	15		1.5	1	6.	6.	Positive	Positive
18	11		1.5	0.50	5.	10.	Negative	Negative
19	11		4.	3.50	14.	4.		Negative
20	6		10.	4.	12.50	3.		Positive
21	8		7	4.	21.	5.25	Positive	
22	3		9.5	3.	10.	3.33	Positive	
23	8		9	4.50	8.50	2.	Positive	
24	12		6	6.	15.	2.50	Negative	Negative
25	9			3.	13.50	4.50	Positive	
26	12		3	2.	8.	4.	Negative	
27	7		3	1.5	1.50	1.		Positive
28	12		3	1.	12.	12.	Negative	Negative
29	13		1	0.50	8.	16.	Negative	Negative
30	7		3	1.50	6.5	4.33	Negative	Negative
31	5		2	0.75	3.25	4.33	Positive	
32	8		5	2.25	4.50	2.	Negative	Positive
33	6		1.5	.50	0.50	1.	Negative	Negative
34	4		3.5	1.25	2.	1.6	Positive	Positive
35	7		3.5	2.25	1.	Less than normal		
36	5		1	.75	0.	Less than normal	Negative	Negative
37	8		3	1.50	3.	2.	Positive	
38	8		1	.50	3.75	4.50	Negative	Positive
39	13		2.5	1.50	9.25	6.16	Negative	Negative
40	8		.50	.25	1.50	6.		Negative
41	11		1.	.50	4.	8.	Negative	Negative
42	7		1.	.50	5.5	11.	Negative	Negative
43	7		3.	1.75	5.	2.8		Negative
44	10		2	1.	6.	6.	Negative	Negative
45	6		3.	1.25	4.75			
TOTAL NUMBER	AVERAGE AGE	AVERAGE TIME AT PREVENTORIUM		EXPECTED GAIN FOR WHOLE GROUP	ACTUAL GAIN FOR WHOLE GROUP	LIVING POTENTIAL OF WHOLE GROUP	PERCENTAGE OF TUBERCULIN POSITIVE CHILDREN	
45	9.44	4.8		131	380	3.	0.44 (44%)	

for different periods of time and with different groups of children. For that purpose, use should be made of graphic methods.

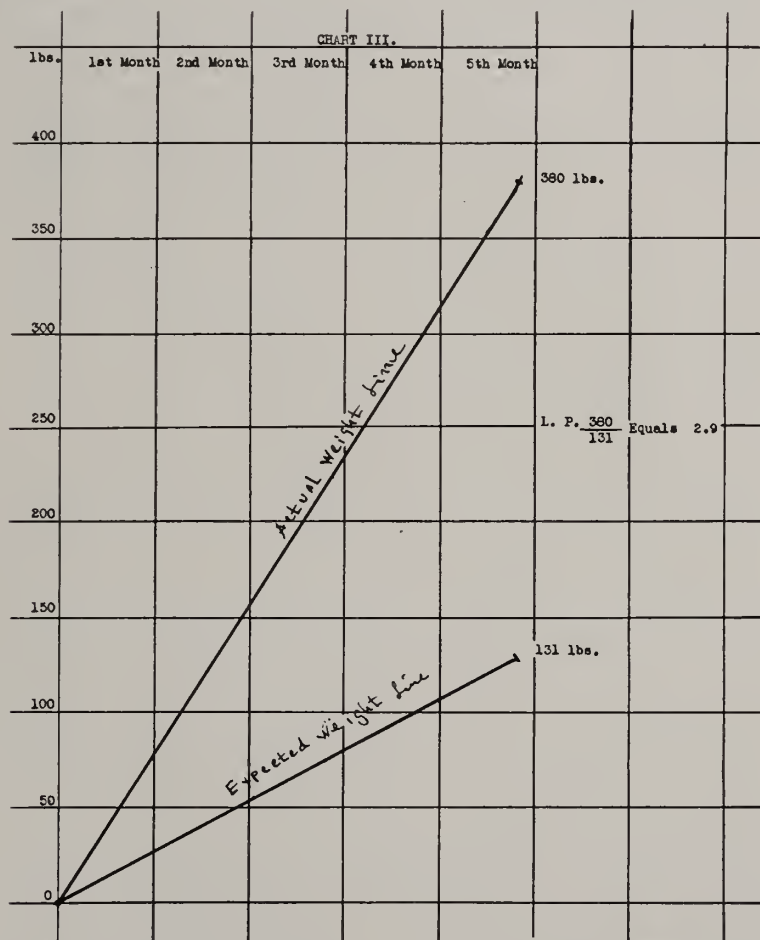
weight on admission and the expected weight on admission are indicated by points perpendicular to the date of admission. The expected



weight for this particular child a year hence is read off from a table and is indicated by a point. A line drawn between the expected weight at time of admission and the expected weight a year hence is called the *expected weight line*.

The *actual* gain in weight is represented by a series of points at the intersection of the weight and date lines. These points are connected to form a line. This line is designated as the *actual weight line*.

Children's Clinic of Vienna. By this term is meant "the ability of every living organism, by virtue of assimilation, to sustain itself; to grow; and to reproduce its kind." In our case we operate with the term *living potential* to mean the actual gain of a child as compared with its expected gain. Reference to *Chart I* will show that the expected gain for the eight month period that the child spent in the institution was 4.5 lbs. The actual gain was 24 lbs. Hence, 24 divided by 4.5 equals 5.5 (in



It is common knowledge that an undernourished child can gain faster per pound or kilogram of body weight when the causative factors of the condition of malnutrition are removed than a normal child of the same age and height. In dealing with large groups of children, a standard of comparison becomes necessary whereby this rate of gain can be expressed in mathematical terms of *unity*. For this purpose I am introducing the term of *living potential* which I have borrowed from Escherich, the predecessor of V. Pirquet, at the

round numbers). We therefore say that the *living potential* of this particular child was 5.5.

CHART II gives a review of the nutritional result of a group of 45 children at the Preventorium. The average age of the group is roundly 9½ years. The average period of residence at the Preventorium is roundly 5 months. The expected gain of the whole group is 131 pounds; the actual gain is 380 pounds. This represents a *living potential* of 3. Forty-four per cent of this group showed a positive tuberculin test. Only one of this number did not

gain what was expected of him in accordance with the weight tables.

Graphically, the nutritional result for the whole group of 45 children may be represented by *Chart III*.

References to *Chart II* will show that the average residence of each child at the Preventorium was 4.8 months. The average gain of each child is derived by dividing the total gain for the whole group, 380 lbs., by the total number of children, 45. This gives an average gain 8.5 pounds. The question will naturally arise whether this average gain represents the *minimum*, *optimum*, or *maximum* gain possible to attain in an institution of this kind. In comparing results with other institutions one must be very careful to note whether the clinical material is the same and whether the same factors or means of treatment are operative in both cases. Thus far I have been able to obtain the record of only one institution which can serve us as a critical comparison.<sup>1</sup> The clinical material, the physical equipment of the plant, the procedure as regards heliotherapy, rest and recreation, are similar to our institution, yet the average gain for a period of eight weeks in that institution is over 7 pounds, while the average gain in our institution for a period of 4.8 months is 8.5 pounds! What factor, then, is responsible for not obtaining in *our* institution optimum results? The factor of diet is probably the one to be considered if better nutritional results are to be obtained in our institution, though the results at present are far better than those of a similar group of children in private practice. From the standpoint of economics it would seem poor economy to keep down the daily cost per child in the institution if the goal to be achieved in the care of children in such an institution is the bringing them up to normal health, which simply means their attaining normal weight. If by doubling the cost of diet it is possible to shorten the length of time necessary to bring up a group of children to normal weight, it will be possible to extend the benefits of the institution to possibly twice or thrice as many children for the same period of its operation.

#### SUMMARY.

1. Practically every malnourished child can attain a satisfactory nutritional level in an institution specializing in this kind of work.

2. The means or factors at the disposal of

such an institution are a physical plant, heliotherapy, fresh air, rest and recreation, diet, and trained supervision.

3. From the standpoint of medical and lay supervision, complete graphic charts should be kept of each individual case and a graphic record should be compounded for the whole group.

4. The term of *living potential* is introduced in nutrition work as means of establishing a *unit* of comparison.

5. Further study and research are necessary to establish the best means and factors operative for the bringing about of *optimum* nutritional results in the shortest possible time both as a medical and economic problem in children's institutions. In other words, how best can a satisfactory *living potential* be obtained?

#### REFERENCE.

1. Lowell Fights Undernourishment Amongst Its School Children. *Am. J. Pub. Health*, Vol. XIX, No. 6, June, 1929.

#### *Arcade Building.*

#### DISCUSSION.

DR. LAWRENCE T. ROYSTER, University: I am going to commend Dr. Newman on his attitude toward the proper handling of children in an institution which is excellent. Children are individuals, as are adults, and are not to be handled as masses. We must realize that there are other factors than the individual child, as paradoxical as that may seem. We are accustomed to looking upon racial traits and upon familial traits and are too often guided by those thoughts and think of those children as being of a certain racial and familial stature. When a child-welfare clinic is held and when we recommend certain cases to be looked after because of their weight and nutrition, all too often the family doctor says: "Look at his father; that is all foolishness." It is not so often a familial trait as it is the result of faulty food habits on the part of the parents which are passed on to the children. We know that obese children are often the offspring of obese parents, not always because of any deficiency of the thyroid, but because they eat the same kind of food which their forbears eat.

So far as institutions go, you can control children by an expectancy figure; Dr. Newman is right on that; and that is the ideal way to control children in an institution; but most of us have to deal with children in their homes. Remember this; a child may gain so many pounds in so many weeks or months and actually have lost. If a child has gained five pounds when he has grown two or three inches and should have gained nine pounds, actually the child has lost. We need to know a little bit more about the biology of the individual cells in its relation to metabolic processes. A child so many inches in height should have so many pounds of weight, irrespective of its parents or where it lives and of racial traits or tendencies.



## TREATMENT OF NEGLECTED OR LATE CASES OF APPENDICITIS.\*

By S. B. MOORE, M. D., Alexandria, Va.

Possibly I should apologize for writing on this subject. I believe it is our duty to face criticism and make every effort to improve our work. A full discussion by this body of medical men should bring some extra light on the subject. With modern technique as employed by the surgeons of today, we should devise some means of reducing the high mortality. The early cases are treated with a mortality rate practically nil. But there is a different story in the late or neglected cases where there is a perforation, localized abscess, or progressive peritonitis. Many blame the medical man, especially the country doctor. Many of us practiced in the country before going to the city and know from experience what he has to contend with. Many surgeons are writing what they term educational papers for the benefit of the doctors in out-lying districts. It is not the doctor, but his patients that should be educated. Frequently, the doctor does not see this class of cases until after the family has tried out all the home remedies, including some drastic cathartic, and frequently there is a peritonitis. This is perhaps the greatest single factor in the increased mortality from appendicitis.

About 40 per cent of the cases that the surgeon sees are late cases. There are three (3) factors in this blunder. Frequently the physician is one, the patient another, then the ever present hypocritical over-emotional relative who is running the whole show and wishes to have you explain over and over the seriousness of the case, and why the necessity of operating at once.

The gradual evolution of treatment of acute appendicitis within the last thirty-five years has taught the medical profession that it is a surgical and not a medical disease. As soon as we can make a diagnosis, do not try to get all the classical symptoms. In practically all cases there will be some symptoms missing. I believe fever is the least important of them all. Pain which becomes localized around McBurney's point, with nausea or vomiting, recto-spasm, and increased white count, are the set of symptoms to be depended upon in the majority of cases. It is well to make a vagi-

nal examination in women and a rectal examination in many, especially in small children or where you suspect pelvic involvement.

Between 1886 and 1915, many articles on acute appendicitis appeared in medical literature. Since that period you will find very few articles in the journals, and these are on some special condition or case reports of some abnormality. Since 1915 there has been an increased mortality from appendicitis. Vital statistics show that 25,000 individuals died from appendicitis in the United States last year. In fact, the mortality rate from appendicitis now exceeds the combined mortality rate from ulcer of the stomach and duodenum, gall-stones, diseases of the pancreas and spleen, goitre, ectopic pregnancy, salpingitis and pelvic abscess.

In early uncomplicated cases, the mortality is less than 1 per cent. In the complicated or late cases, the mortality ranges from 5 to 30 per cent. A probable cause of increased mortality in simple appendectomy, it is no longer considered by some doctors a major operation and is attempted by inexperienced operators. In the past, many of the end results of neglected appendicitis were charged, not to the appendicitis but to some other troubles, namely, perinephritic abscess, liver abscess, septic pneumonia, etc. As our diagnostic skill has improved and with the aid of well equipped laboratories, we make fewer mistakes of this type.

There are three (3) very good rules to follow in any type of acute abdomen and especially in acute appendicitis:

1. Never give a dose of morphine until you have made a diagnosis—it masks symptoms, fosters the spirit of procrastination which has done more toward increasing the mortality of appendicitis than any one factor. You may give it after you have made your diagnosis.

2. Close the mouth and keep it closed, no food, no cathartic, in fact, nothing by mouth. This is to prevent peristalsis. Give Murphy drip or any other method, but keep out of the mouth.

3. Never give a cathartic in acute abdomen and start up peristalsis; this will cause a perforation in an acutely inflamed appendix.

When the diagnosis of acute appendicitis has been made, operation should be performed at the earliest possible moment, *unless* the pa-

\*Read at the meeting of the Medical Society of Virginia, Maryland and District of Columbia, in Washington, D. C., November 13, 1929.

tient is extremely ill with the following symptoms—low blood pressure, high temperature, or sub-normal temperature with coldness of extremities, with distention predominating over rigidity, with diminished pain and silent abdomen. If you operate with this train of symptoms, your mortality rate will be increased. Use the Ochsner treatment with all the extra frills at your command.

Osler's statement is an excellent one for the doctor to remember, whether his leanings be toward the conservative or the radical method of treatment, that "the surgeon is often called too late, never too early."

In the past eighteen months, in my service at the Alexandria Hospital, I operated on 164 cases of acute appendicitis, some of them late or neglected cases. There were 103 cases of acute appendicitis without perforation or pus formation—with no deaths, while twenty-six were gangrenous with fecoliths, many of these having perforations—with no deaths. There were also twenty-eight cases that were abscessed and walled off, the appendix being removed in all of these—with no deaths. Seven cases had peritonitis of different types. There was one death in the hospital. One very old emaciated lady with bad heart, partially paralyzed, due to apoplectic stroke about three years before, with the cecum partially gangrenous and the appendix a soft gangrenous mass, was sent home with a fecal fistula, and died about two months later.

I do not expect to add any new method of operation. I believe, as Jno. B. Murphy once said, "get in quick and get out quicker." The rapid, skilful operator will save more lives than the slow deliberate one.

I wish to emphasize a few points in abscess cases where there is a preponderance of colon bacilli. I build a coffer-dam of gauze pads, protect my abdominal wall with gauze, break in and wipe out the pus, remove the appendix, which I then tie off with black linen. I do not attempt to use a purse string suture; in fact, I have not used one for the past three years. Oozing is stopped by use of a few hot pads. I do not mean warm, but hot—120 degrees. I follow this with an ether mop out, then refill with ether and mop out again, after which I put in my drain tube and close the wound.<sup>1</sup> The patient is placed in a well

warmed bed, and salt solution is started. When the patient recovers from the anesthetic, he is placed in the Fowler position, Murphy drip is started. Morphine as necessary is given hypodermically, and nothing by mouth.

I do not drain as many cases as I formerly did, as I find the peritoneum will take care of itself if you give it a chance.

*The Retrocecal Appendix:* Operation for this condition in very fat or pendulous abdomens is rather a difficult procedure. I do what Crile calls the "Robin Operation." Frequently you cannot deliver the distal end first. It is much easier to remove it backwards.

Post-operative complications have been greatly reduced with early operation and improved after-treatment. I will consider a few of these here. I recently treated a case of pelvic abscess. About one week after operation, this was a peritonitis case, temperature gradually ran up, bowels at first were moved with enema, but caused considerable pain. There was constant pressure. Later the bowels would not move and the enemas would not return. I made a rectal examination and found great intra-abdominal pressure. With my finger in the rectum, I passed a curved hemostat in the rectum, forced it through the bowel and opened the abscess, thereby giving instant relief. As soon as abscess drained off, the bowels moved freely, and the picture changed from a very sick little patient to one that could smile and say, "Oh! what a relief!"

In fecal fistula keep the wound clean. I do not hesitate to perforate the bowels, if necessary. A great majority will get well without interference.

The diagnosis of subphrenic abscess at the outset is difficult; it is usually right-sided, there is pain on deep breathing, and the temperature runs up in about two or three weeks. X-ray shows higher diaphragm on the affected side with lessened movement. An air bubble just beneath the diaphragm is diagnostic. The best surgical approach to right-sided abscess in this condition is to resect the 9th and 10th ribs in mid-axillary line, splitting fibers of the diaphragm below the pleural reflexion, and to enter the abscess from beneath the diaphragm.

There are many other complications we may discuss later, when the time is not so limited. However, I hope this may start a discussion

1. Ether will kill colon bacillus in few seconds.



that will develop something new—at least, to some of us.

811 Prince Street.

## STUDIES IN THE USE OF AMYTAL AS A GENERAL ANAESTHETIC.\*

By

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Sodium iso-amyl-ethyl barbituric acid is beginning to attract much attention as to the possibilities for its use as a general anaesthetic.

Dr. William J. Mayo, in the Editorial Department of the January number of *Surgery, Gynecology, and Obstetrics*, states that with the new anaesthetics, for instance, the sodium salts of barbituric acid and others of that type, we at least have achieved a scientific method of injecting the anaesthetic intravenously, thereby relieving the lung and other organs of certain dangers to which we have become so accustomed as almost to have forgotten the reason for their existence. "Our experience," he says, "with sodium iso-amyl-ethyl barbituric acid demonstrates that direct methods of producing anaesthesia may soon be expected, which in connection with the approved methods of producing regional anaesthesia will relieve the patient of unnecessary dangers to unoffending organs. Certainly as far as sodium iso-amyl-ethyl barbituric acid is concerned the speed with which the patient drops asleep and the freedom for some hours after operation from all painful sensations has led many patients who have had unpleasant experiences with general anaesthetics to plead to be operated upon under this newer form."

We began to experiment with amytal for use as a general anaesthetic and for use as a relief for convulsive disorders at the State Colony for Epileptics and Feeble-Minded on December 19, 1929, and up to the present time have used it in eleven cases of abdominal surgery and nine cases of epileptic status, with what we thought to be rather amazing results; the drug has also been used to relieve the pains of parturition with satisfactory results.

For intravenous use it is prepared by the manufacturing chemists in the form of white crystals sealed in glass ampoules, and for oral administration as a white powder in capsules

of three grains each. A 10 per cent solution has been found quite satisfactory for intravenous administration and is made by dissolving the crystals in sterile, distilled water from which a clear solution should result. If it is at all opaque it should be discarded; nor should it be allowed to stand for any length of time after mixing as very material chemical changes occur when the drug is allowed to stand in solution.

It has also been used intramuscularly with success, but of course its action is not as rapid by this means as when injected directly into the blood stream. The rate of injection should probably not exceed about one cubic centimetre per minute. We have felt it important to adhere to this and have not experimented with a more rapid injection.

The amount of the dose is based upon the body weight of the patient, and may be regulated so as to produce different depths of anaesthesia. For surgical purposes 15 to 25 milligrams ( $\frac{1}{4}$  to  $\frac{1}{3}$  grain) per kilogram of body weight has been found sufficient. The lethal dose for man is unknown, and Dr. Mayo states that in several hundred cases in which amytal was used in their clinic no deaths could be attributed to it. But in view of the fact that the lethal dose is unknown, extreme caution should be used in its administration. So far as we know at the present time, a maximum dose of 25 milligrams per kilogram of body weight should not be exceeded.

The cases reported in this paper were inmates of the State Colony for Epileptics and Feeble-Minded and the eleven upon whom major surgery was performed had been selected for eugenical sterilization as provided for under Chapter 394, Acts of the Assembly, 1924. All were females and a routine salpingectomy and appendectomy was performed in each case through a midline incision.

The usual pre-operative preparations were observed, and in part of the cases  $\frac{1}{4}$  grain of morphine sulphate with  $\frac{1}{150}$  grain of atropine sulphate was administered hypodermically one-half hour before beginning the operation. In the others, 10 grains of chloretone also was administered by mouth two hours before operation.

In our hands the use of chloretone in addition to morphine and atropine was found to be much more satisfactory; and in several of these cases it was possible to perform the en-

\*Read at a meeting of the Lynchburg and Campbell County Medical Society.

tire operation without the use of a single drop of ether.

On administration of amytal in a 10 per cent solution at the rate of one cubic centimetre per minute the following effects were observed: anaesthesia was rapidly produced without any intervening state of excitement; deep sleep came within three to five minutes, and surgical anaesthesia was complete in about twenty minutes following the injection. The respirations were at first decreased in amplitude and rate, but were regular and in about one hour the rhythm was normal. The blood pressure was reduced in range from 15 to 30 mm. during the injection, but soon regained its normal level. All of the patients retained a normal coloring of the skin throughout the anaesthesia, and the appearance of the individual reminded us of one in a deep hypnotic state.

The length of time consumed in performing these operations ranged from twenty-three to fifty minutes each, the complete anaesthesia lasting throughout this time and the patients remaining in deep sleep from five to fourteen hours after coming from the operating room. There was no nausea and no vomiting in any case, nor was there any delirium as is said to sometimes occur; our patients awakening in complete possession of such mental faculties as they normally possessed, and being able to recall incidents clearly up to the time that they began to fall asleep. Mental shock was absent and other cases have begged to be given the same anaesthetic in the event that they should be operated upon.

In those in which amytal was used alone, the patients were slightly sensitive to skin incision; and also somewhat sensitive to traction on the peritoneum, nor was there complete muscular relaxation, about two ounces of ether being required in each of these to produce a satisfactory surgical anaesthesia. In the three cases in which 10 grains of chlorotone was given by mouth two hours beforehand, no other anaesthetic was required. In one of these muscular relaxation was as complete as the deepest ether anaesthesia; in another the muscular relaxation was fair; and in a third there was slight resistance when the skin incision was made.

In all of our cases the anaesthetic was administered in the patient's room and none has any recollection of being transported to the operating room, nor have they any recollec-

tions of the proceedings at all from the time that they began to fall asleep. All had smooth, uneventful convalescences.

You will note from the following records kept by the anaesthetist during the operation and of the immediate post-operative period, the phenomenally smooth and uneventful course which these cases pursued:

PATIENT: Mary H.—

Date of Operation: December 19, 1929.

Operation: Appendectomy and sterilization.

Place of Operation: Infirmary of the State Colony for Epileptics and Feeble-Minded, Amherst County, Virginia.

Pre-Anaesthetic Narcotic:  $\frac{1}{4}$  grain morphine sulphate; 1/150 grain atropine sulphate.

Anaesthetic: Amytal and ether.

10:26 A. M.: Administration of 900 mgm. of amytal intravenously begun. Temperature 98.6; pulse 104, respiration 20.

10:37 A. M.: Administration of amytal ended: pulse 108; respiration 15.

10:41 A. M.: Pulse 84; respiration 11; color good.

10:51 A. M.: Pulse 80; respiration 11.

10:56 A. M.: Operation begun and a small amount of ether given.

11:07 A. M.: Operation proceeding without difficulty: pulse 72; respiration 16.

11:10 A. M.: Blood good color; no abnormal tendency to bleed; patient in good condition.

11:12 A. M.: Appendix removed without difficulty; the necessary traction on the colon did not seem to cause any pain. Patient thoroughly relaxed at this time. Traction on the uterus and resection of the uterine end of the fallopian tubes performed without stimulating any movement on the part of the patient, other than respiration became deepened. Pulse 88; respiration 22.

11:18 A. M.: Patient slightly paler and muscles a trifle rigid; a slight movement noted on suturing the peritoneum. Patient's general condition is good. Pulse 98; respiration 20.

11:28 A. M.: The patient made a slight movement on placing traction sutures through the skin and fascia and offered some slight resistance.

11:33 A. M.: The operation ended with the pulse 96 and the respiration 22: the patient's body was warm, and her color good, although she was slightly pale. The blood pressure at this time was systolic 120, diastolic 80; pulse pressure 40.



There was no evidence of shock, and about 1 ounce of ether was used when making the skin incision, as this seemed to be somewhat sensitive.

PATIENT: Winnie E—.

Date of Operation: January 8, 1930.

Operation: Appendectomy and sterilization.

Weight: 94 pounds equals 44 kilograms. Was given 1000 mg. amytal which equals  $23\frac{2}{3}$  mg. per kg. body weight.

11:27 A. M.: Administration of amytal begun; pulse 104; respiration 20.

11:30 A. M.: Patient very drowsy.

11:32 A. M.: Patient asleep; pulse 130; respiration 20.

11:38 A. M.: Administration amytal ended; pulse 130; respiration 20.

Patient sound asleep; color rosy, condition good.

11:45 A. M.: Color rosy; condition good; pulse 130; respiration 20.

11:47 A. M.: Small amount of ether given: operation begun; pulse 136; respiration 22.

11:51 A. M.: No movement on skin incision, but patient took a deep breath; muscles twitched once on abdominal incision, but no resistance. Peritoneum opened with no resistance with only a deepening of respiration. Caecum and appendix brought into wound without difficulty and with no resistance on the part of the patient.

11:55 A. M.: Relaxation good; patient quiet and in good condition. Appendix found to be free; removed by cautery and stump inverted.

12:01 P. M.: Uterus found to be small, but no pathology found in pelvis.

12:02 P. M.: Deepened respiration upon clasp ing uterus and pulling it into wound. Pulse 140; respiration 32. Pulse regular and of good quality; condition of patient good.

12:07 P. M.: Patient's only resistance so far has been deepened respiration on traction of peritoneum. Peritoneum closed. Patient groaning but no resistance; no bulging of the intestine.

Attention is called to the fact that while well-grown, this patient is but fifteen years old. Attention is further called to the pulse rate which remained rapid throughout, though of good quality. Respiration apparently not affected. Slight resistance by movement of leg while tying superficial vessel. No resistance through operation which interfered with operator's work.

PATIENT: Leona C—.

Operation: Appendectomy and sterilization.

Patient's weight, 129 pounds equals 58 kilograms. Given 1000 mg. amytal which equals  $17\frac{1}{3}$  mg. per kg. body weight.

January 8, 1930.

11:17 A. M.: Injection of amytal begun; pulse 84; respiration 20.

12:21 P. M.: Patient asleep.

12:28 P. M.: Injection of amytal ended; pulse 96; respiration 20.

12:41 P. M.: Small amount of ether given.

12:43 P. M.: Operation begun; patient moved; pulse 92; respiration 20, use of ether continued.

1:03 P. M.: Appendix found to be free and removed by cautery. Stump inverted in the usual manner. Patient well-relaxed and in good condition. Pulse 112; respiration 28.

1:36 P. M.: Operation completed; patient in good condition. Four ounces of ether were given along with the amytal.

PATIENT: Evelyn B—.

Weight 105 pounds equals 48 kilograms.

Anaesthesia: Amytal 1000 mg. equals 21 mg. per kg. body weight.

Hypodermic: Morphine sulphate, given at 10:00 A. M.

11:33 A. M.: Pulse 140; respiration 21; blood pressure 125/76; anaesthesia begun.

11:46 A. M.: Injection ended; pulse 120; respiration 16; blood pressure 85/60; patient apparently asleep.

11:55 A. M.: Pulse 120; respiration 16. Patient apparently asleep but moved when towel clips inserted. Respiration was rather shallow. Skin infiltrated with 1 per cent procaine. Procaine poorly infiltrated into skin.

12:01 P. M.: Pulse 108; respiration 16. Operation begun; patient moved when skin incision was made and also when peritoneum was incised. There was not complete abdominal relaxation.

12:12 P. M.: Pulse 112; respiration 16. The appendix higher up and posterior was delivered only by much traction which caused pain.

12:13 P. M.: Small amount of ether given. All through the operation a small amount of ether was given in order to obtain relaxation, about 2 ounces in all being given.

12:46 P. M.: Operation ended. Pulse 108; respiration 24; blood pressure 118/75.

The anaesthetic in this case was the least satisfactory of any case so far. Patient was more sensitive to pain. It was necessary to

give small amounts of ether at frequent intervals to obtain proper relaxation of the abdominal muscles; muscles relaxed only when getting ether.

At no time in any of the three cases in which amytal has been used, either before or during and so far after operation, has there been any, or even slight, alarming symptoms.

At 5:00 P. M. moved her legs and her head from side to side; however, patient was not awake.

At 10:00 P. M. patient was restless, twisting in bed, and muttering, complaining of pain.

At 10:15 patient was given  $\frac{1}{4}$  gr. morphine sulphate hypodermically, and then slept until 6:00 A. M.

Patient at no time vomited or was nauseated; neither did she complain of gas pains, nor did she perspire.

This is the third day after operation. Patient's convalescence has been comfortable; at no time has she vomited or complained of nausea; nor has there been any perspiration. The only complaint patient has made since operation has been from the tightness of her bandage.

(Note). Both this patient and another had taken ether for previous operations. Both have stated that, if ever they have to be operated on again, they would much prefer amytal to taking ether.

PATIENT: Ella L.—

Weight, 97 pounds, equals 44 kilograms.

Patient operated on January 8, 1930. Anaesthetic: Amytal and ether. 1000 mg. amytal injected equals 23.66 mg. per kg. body weight.

10:30 A. M.: Injection begun; pulse 80; respiration 18.

10:35 A. M.: Patient asleep; pulse 68; respiration 18.

10:47 A. M.: Injection ended; pulse 68; respiration 20.

10:57 A. M.: Ether begun; patient struggled slightly.

11:00 A. M.: Operation begun; slight struggle when skin incision made. Peritoneum incised and handled with no resistance on part of patient. The appendix removed in usual manner by cautery and stump inverted. Uterus retroverted, but otherwise normal; adnexa normal.

11:10 A. M.: Patient pale, but in good condition. Moved legs and grunted when traction made on peritoneum.

11:20 A. M.: Peritoneum and fascia closed with no resistance of patient. Patient moved slightly when silk-worm sutures placed in skin. Black silk sutures placed in skin caused slight resistance.

11:25 A. M.: Operation ended. Pulse 64; respiration 18. About  $11\frac{1}{2}$  ounces of ether used during operation.

Patient slept six hours following operation, and when awakened, was easily quieted with a hypodermic of morphine sulphate, gr.  $\frac{1}{4}$ .

Patient made an uneventful recovery from operation.

PATIENT: Annie L.—

Appendectomy and sterilization.

Weight 99 pounds, equals 45 kilograms.

1000 mg. amytal given equals 22  $\frac{2}{9}$  mg. per kg. body weight.

11:16 A. M.: Anaesthesia started; pulse 140; respiration 16.

11:26 A. M.: Anaesthesia ended; patient was asleep in four minutes; pulse 135; respiration 20.

11:32 A. M.: Patient stirred on application of alcohol to the skin.

11:34 A. M.: Resists towel clips slightly.

11:38 A. M.: Small amount of ether given.

11:45 A. M.: 1 gr. ether given, incision made, slight resistance. Pulse 135; respiration 28. Traction on appendix and caecum caused no resistance; patient well-relaxed.

11:53 A. M.: Moaned on delivery of the uterus, but no resistance offered. Uterus enlarged and retroverted. Appendix removed and the tubes resected.

12:00 M.: Operation completed and abdomen closed without difficulty.

12:05 P. M.: Pulse 135; respiration 18.

12:08 P. M.: Patient removed from operating room. Pulse 108-110; respiration 20. General condition: excellent.

PATIENT: Lilly H.—

Operation: Sterilization only, appendix removed in previous operation. Weight, 116  $\frac{1}{2}$  pounds equals 53 kilograms.

Patient operated on January 15, 1930. Anaesthetic: Amytal and ether. 1000 mg. amytal injected equals 18.9 mg. per kg. body weight.

12:09 P. M.: Injection begun; pulse 100; respiration 19.

12:14 P. M.: Patient asleep.

12:20 P. M.: Injection ended; pulse 92; respiration 16.

12:35 P. M.: Pulse 84; respiration 12.



12:40 P. M.: Use of ether begun.

12:46 P. M.: Incision made; patient resisted strongly.

12:53 P. M.: Patient relaxed; more ether given.

1:05 P. M.: Patient resisted when peritoneum was incised, and more ether was given; pulse 88; respiration 24.

1:13 P. M.: Operation finished. This patient was operated on for sterilization only; the appendix having been removed in a previous operation. About  $1\frac{1}{2}$  ounces of ether were used during the operation.

Patient slept several hours after operation, and when awakened, was easily quieted with a hypodermic of morphine sulphate, grain  $\frac{1}{4}$ . She made an uneventful recovery.

Amytal as an anaesthetic was very unsatisfactory in this operation.

PATIENT: Rose E—.

Operated on January 22, 1930.

Chloretone, gr. 10. given by mouth two hours before operation.

Morphine, gr.  $\frac{1}{4}$ ; atropine  $1/150$ , given hypodermically one-half hour before operation.

Weight,  $105\frac{1}{2}$  pounds equals 48 kilograms.

Amytal 1,000 mg. given equals 20.8 mg. per kg.

11:10 A. M.: Injection begun; pulse 96; respiration 21.

11:15 A. M.: Patient asleep; pulse 104; respiration 19.

11:35 A. M.: Pulse 112; respiration 20.

11:38 A. M.: Incision made without resistance; peritoneum incised without resistance; patient well-relaxed.

11:48 A. M.: Appendix delivered with difficulty, but caused no resistance; removed in usual manner by cautery and stump inverted. Pulse 116; color good; condition good, and patient had not moved.

Uterus and adnexa normal; sterilization done in usual manner.

Incision closed in layers in usual manner with no resistance of patient.

12:05 P. M.: Operation ended. Pulse 120; respiration 20; color good, and patient in good condition. There was good relaxation and the patient was well under the anaesthetic throughout the operation.

Patient slept several hours following the operation; easily controlled with a hypodermic, morphine  $\frac{1}{4}$  gr. Patient made an uneventful recovery.

PATIENT: Mary C—.

Operated on January 22, 1930.

Chloretone gr. 10 given two hours before operation.

Morphine gr.  $\frac{1}{4}$ , atropine  $1/150$ , given hypodermically one-half hour before operation.

Weight  $81\frac{1}{2}$  pounds equals 37 kilograms.

Amytal 900 mg. given equals 24.3 mg. per kg.

12:03 P. M.: Injection begun; pulse 132; respiration 18.

12:09 P. M.: Patient asleep; pulse 128; respiration 16.

12:30 P. M.: Patient asleep and in good condition; pulse 132; respiration 16.

12:34 P. M.: Incision made. Only deepened respiration noticed on part of patient.

12:40 P. M.: Patient slightly rigid and straining; appendix delivered without difficulty, and removed in usual manner by cautery and stump inverted. Uterus and adnexa normal; sterilization done in usual manner. Incision closed in layers; no resistance of patient.

1:10 P. M.: Operation ended; pulse 116; respiration 16. Color good and patient in good condition. Anaesthetic was satisfactory during the entire operation, but patient not as well relaxed as the preceding one.

Patient slept several hours following the operation, easily controlled with a hypodermic: morphine  $\frac{1}{4}$  grain. Patient made an uneventful recovery.

PATIENT: Bessie S—.

Operated on January 22, 1930.

Chloretone gr. 10 given two hours before operation.

Morphine, gr.  $\frac{1}{4}$ , atropine  $1/150$ , given hypodermically one-half hour before operation.

Weight, 85 pounds equals 38.6 kg.

Amytal 950 mg. given equals 24 mg. per kg. body weight.

12:50 P. M.: Injection begun; pulse 120; respiration 24.

12:55 P. M.: Patient asleep; pulse 118; respiration 22.

1:04 P. M.: Injection ended, patient asleep; pulse 104; respiration 18; color good.

1:26 P. M.: Incision made; patient kicked and respiration deepened; ether begun,  $\frac{1}{2}$  ounce given; patient well-relaxed. Appendix normal and removed in usual manner by cautery and stump inverted. Uterus and adnexa normal; operation done in usual manner. Inci-

sion closed in layers without resistance of patient, but only deepened respiration.

1:55 P. M. Operation ended; pulse 128; respiration 121. Patient in good condition all through the operation, good relaxation, ether  $\frac{1}{2}$  ounce given during operation.

Patient slept several hours following the operation; easily controlled with a hypodermic, morphine  $\frac{1}{4}$  grain. Patient made an uneventful recovery.

We have found amytal to be an extremely useful drug in controlling the convulsions in status epilepticus. This condition in which there are rapidly recurring seizures, accompanied by profound stupor, high temperature and extreme prostration, is most generally fatal unless the seizures can be promptly arrested, death supervening as a result of cardiac dilatation or pulmonary edema. The usual treatment of continuous hot baths and spinal puncture or general anaesthesia, or sodium luminal intravenously, is ineffective in many cases; as the seizures have a tendency to recur as soon as the anaesthesia wears off.

In nine cases of serial convulsion in which amytal has been used there were nine recoveries. The quantities of the drug used ranged from 10 to 20 mgs. per kilo body weight. The convulsions ceased after 3 to 4 cubic centimeters had been injected, and the patients remained asleep from five to ten hours, following which the convulsions did not recur, until the next period for an attack.

The intravenous administration of any drug as potential as amytal and which has a prolonged continuous effect should have an antidote, and for this purpose the injection of  $\frac{1}{2}$  to  $\frac{3}{4}$  grain of ephedrine sulphate, followed by from  $7\frac{1}{2}$  to 15 grains of caffeine sodium benzoate, is said to cause the patient to awaken promptly, and to be an effective antidote. We have, however, not had occasion to use this treatment in our small series.

#### SUMMARY

1. From our experience we conclude that amytal is a powerful and effective anaesthetic; that it can be used alone, but more effective results can be obtained by preceding its administration with chlorotone by mouth.

2. We have found it more effective than any other drug that has come under our observation up to the present time for the control of convulsions in a series or of status epilepticus.

3. There are, in so far as we have been able to observe, no pernicious after-effects.

4. Up to the present time no certain contra-indications for its administration have been charted.

5. It can be administered orally, intramuscularly, and intravenously with safety, by observing ordinary precautions and keeping within the limit of the maximum dose; and while we are not yet ready to venture an assertion that it will ever supplant ether as a general anaesthetic, we can from our limited experience prophesy a wide field of usefulness for it, both in the field of general surgery and in the treatment of convulsive disorders and nervous conditions.

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### CIRCUMCISION BOARD—ESPECIALLY FOR THE NEW-BORN.

By JOSEPH BEAR, M. D., Richmond, Va.

Frequently, in the performance of circumcisions in the new-born, one is confronted with the problem of holding the legs of the infant, so as to avoid obscuring the field of operation.

The board herein described is a modification of the one used by DeLee.

The writer has so arranged the board that it can be conveniently folded and placed in an ordinary brief case with the other necessary instruments. Thus, it is so compact, that the operator can easily carry the entire outfit (weight  $4\frac{3}{4}$  lbs.) either to hospital or home. The board is 21 inches long and 6 inches wide. In the middle are placed two small hinges, thus affording an even folding. It is covered with two layers of protective material, one, next to the board, a white felt, water-proof covering and on top, white rubberized sheeting, making the process of washing comparatively easy if same becomes necessary. The surface on which the baby lies is perfectly smooth; on the reverse side small tacks are seen holding the material in place. At the foot portion, beginning just where the hips are placed, the board assumes a V-shaped appearance, each



section of the letter corresponding to each leg of the infant.

Herein lies the important step in aiding the operator by keeping the legs apart and having the field of operation satisfactorily exposed, thus facilitating matters.

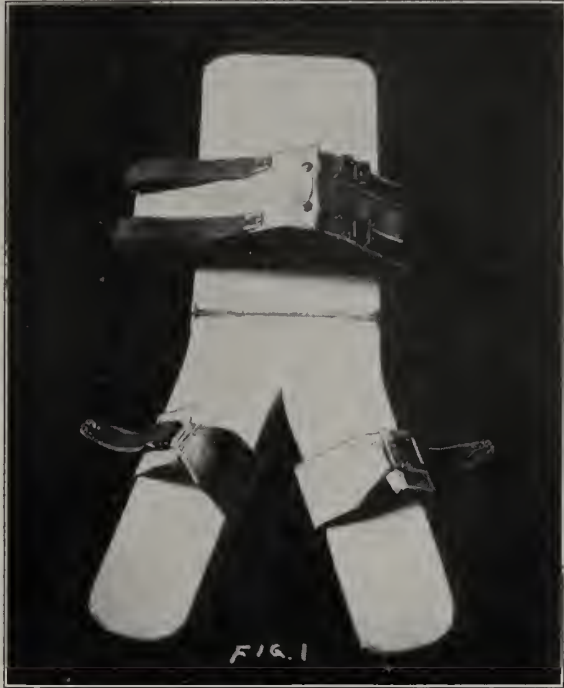


Fig. 1.—Board ready for use.

At the head of the board a small towel or napkin is placed to serve as a pillow. At the divergent section another towel is placed so as to protect it from soiling and, if extreme care is exercised, the board will remain clean throughout the operation.

There are three straps (webbing) and attached to them are buckles. One strap is placed so as to buckle itself over the chest and the other two fasten over the knees, thus holding the little patient comfortably to the board-table. In the center of the upper and larger strap are placed two rows of clasps which can be easily adjusted and serve only as an additional means of re-enforcement. The circumcision can be done without any assistance.

If any form of "oral anesthetic" is to be used, one can easily employ the following: a nurse holding a nipple and a bottle in baby's mouth (using a 6 per cent sugar solution.)

The additional articles carried in the bag are as follows: Bard-Parker knife, mosquito

hemostat; small and large scissors; circumcision clamp; circumcision suture (catgut); Ky lubricating jelly; 1 inch gauze bandage and bottle containing equal parts of adrenalin chloride (1-1000) and distilled water.



Fig. 2.—Patient ready for circumcision.



Fig. 3.—Board folded and partially placed in brief case.

In the average case the writer only uses knife, circumcision clamp and bandage. The other articles are carried as accessories in the event they become necessary.

The subsequent daily dressings, can likewise be done on this board. It being so handy and convenient, same can be placed on any table, in home or hospital, and it is my opinion, that this simple device can be safely utilized by the general surgeon in other conditions such as pyloric stenosis, intussusception and congenital hydrocele.

301 East Franklin Street.

## BERIBERI IN VIRGINIA WITH REPORT OF A CASE.\*

By OSCAR SWINEFORD, JR., M. D., University, Va.

Only three references to the occurrence of this disease in Virginia have been found. Holcomb<sup>1</sup> reported an outbreak on a Brazilian warship in Hampton Roads during the Jamestown Exposition. The victims were treated in the United States Naval Hospital in Norfolk. During the World War a German vessel, "The Eitel Wilhelm," came into Norfolk with a number of cases on board.<sup>2</sup> The death of an army officer, whose first symptoms of beriberi had appeared while in France, was reported in Richmond in 1921.<sup>3</sup>

Outbreaks in the United States occurring prior to 1910 are mentioned in the United States Public Health reports of that year.

In the United States Registration Area, the Mortality Statistics of the United States Department of Commerce report only 149 deaths from beriberi between the years 1910 and 1926. The annual number of deaths varies from five to seventeen. It is interesting to note that 64, or 43 per cent of the total number of deaths, were reported from California, and 26, or 17 per cent, from the State of Washington. It is probable that the high figures in these states may be explained by their large Oriental population.

Of our nearby states, North Carolina reported only one death, and South Carolina three between 1916 and 1926. Tennessee reported two between 1917 and 1926.

Scott and Hermann<sup>4</sup> have recently made an interesting and detailed report of the disease as it occurs in Louisiana.

Contrasted with the relative infrequency in the United States is an extract from the Mor-

tality Statistics of a recent year in Japan which reports 71.3 deaths from cancer and 34.2 beriberi deaths per 100,000 population.

Before presenting the case, which is the real reason for this report, it might be well to recall very briefly the outstanding features of the disease. Excellent detailed information, which would be superfluous here, may be had in the works of McCollum<sup>5</sup>, Vedder,<sup>6</sup> Stitt,<sup>7</sup> McCarrison,<sup>8</sup> Findlay,<sup>9</sup> Scott and Herrmann,<sup>4</sup> Riddell and Smith,<sup>10</sup> Hepburn,<sup>11</sup> Musgrave and Crowell,<sup>12</sup> and many others.

### THE DISEASE.

Beriberi is an old but newly classified deficiency disease which is characterized by polyneuritis, circulatory insufficiency and gastrointestinal disturbances. The efforts of Eijkman, Fraser and Stanton, and Funk to identify the curative substance contained in rice polishings gave rise to the term and, later, to our present conception of vitamins. Since then beriberi, pellagra, scurvy, rickets and xerophthalmia have acquired a new experimental, clinical, and public health interest.

*Etiology.*—The disease is primarily due to a deficiency, partial or complete, of vitamin B. Diets deficient in vitamin B are usually monotonous and consist largely of carbohydrates, with or without a large proportion of fat. They are usually inadequate in protein and markedly lacking in fruits, fresh vegetables, milk, eggs, whole cereals, and glandular organs. Typical diets are made up largely of polished rice, as in the Orient and the Louisiana parishes; corn meal in Brazil; salted meat, boiled cowpeas or beans, white bread and molasses, such as one finds in prisons, on ships, etc. Beriberi has recently been reported as occurring in a diabetic<sup>13</sup> under treatment and presumably has occurred in typhoid patients, as we propose to show.

The onset of the symptoms in cases of moderate vitamin B deficiency is thought to be precipitated by various factors, such as overexertion, poor hygiene, poor elimination, alcoholism or infections; in general, those conditions which tend to lower the so-called body resistance. Some eighteen theories have been proposed as the vital factor in the causation of this disease.

*Pathology.*—It is not known how nor why a deficiency in the antineuritic vitamin B produces the morbid changes found in this dis-

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ease. There are many interesting theories. The outstanding findings in brief are:

1. Atrophy of all tissues and organs except hypertrophy of the adrenal gland.

2. Myocardial degeneration with fragmentation of the muscle fibers and usually dilatation of the right heart.

3. Degenerative changes in the nervous system which are fairly typical. There is marked variability in the degree and location of the nervous lesions. In brief, the changes are characteristically in: (a) the nerve cells, particularly of the anterior horn and posterior root ganglia, which show degenerative changes of the nuclei and total or partial disappearance of Nissl's granules. (b) The peripheral nerves, which show rather marked degeneration of the myelin sheath (more pronounced towards the terminal end organs than centrally) and of a small percentage, usually, of the fibers of the axis cylinders. Any of the peripheral nerves may show these changes. It is striking that the vagus and sciatic nerves are rarely spared. (c) Changes have been reported in the sympathetic system and the various tracts of the spinal cord and occasionally in the motor nuclei in the floor of the fourth ventricle.

*Symptomatology.*—The clinical picture is very variable. Depending upon the degree and duration of the dietary deficiency and other factors, the onset may be abrupt or insidious and the course of the disease acute or chronic, mild or severe. The cardinal symptoms are those of gastro-intestinal and circulatory disturbances and of peripheral neuritis, either of which may be the first to appear.

The gastro-intestinal symptoms are almost always loss of appetite, gas and fullness, with pain and tenderness in the epigastrium after meals. They are presumably explained by the involvement of the vagus nerve and the atrophy of the intestinal mucosa and pancreas.

The circulatory symptoms are usually palpitation and dyspnea on exertion and slight edema of the ankles in the milder cases. Substernal oppression after meals or on slight exertion, massive edema, engorgement of the neck veins and, frequently, sudden death characterize the more serious ones. These symptoms are due, presumably, to the myocardial degeneration and the involvement of the vagus nerve.

The peripheral neuritis usually begins in the feet and legs with weakness, heaviness and

fatiguability; numbness or formication, or pain and tenderness in the calves and ankles. More advanced cases will show: paralyzes, particularly of the anterior tibial group with resulting toe drop and a steppage or shuffling gait; an early increase and later decrease or loss of the knee jerks and ankle jerks; hypoaesthesia or anesthesia to pin prick, light touch, heat, cold, and change of position of the feet; extreme pain and tenderness of the muscles and skin. The usual spread of the signs of peripheral neuritis is from the feet and legs up the thighs to the hips, and then from the fingers and hands up the arms. Circumoral anesthesia is a queer but fairly constant finding. Atrophies and contractures occur as in any other neuritis.

The cases are classified as wet or dry, depending upon the presence or absence of edema and polyserositis. The wet cases differ from the dry only in the presence of retained fluids which may mask the atrophies and wasting so characteristic of the disease. A dry case may become wet and *vice versa*. It is believed by some that the wet cases are due to an additional unknown deficiency. In many cases the edema is purely circulatory in origin and disappears promptly with rest in bed.

*Physical Signs.*—The more constant physical findings are:

1. Emaciation, which may be obscured by edema and polyserositis.

2. Cardiovascular, with weak, distant heart sounds, enlargement of the heart to the right, regular pulse of low tension, blood pressure usually about 100/60. There are no constant murmurs nor accentuations of sounds. Evidence of heart failure may be present. The electrocardiogram shows evidence of myocardial damage by alterations of the T-waves and of the QRS complexes.

3. Abdominal distention, tympany and tenderness. Signs of fluid may be added.

4. Peripheral neuritis, with the motor, sensory and reflex changes mentioned above.

*Laboratory.*—Laboratory findings are of little help. The urine, hemoglobin, r.b.c., w.b.c., differential, stools, gastric contents, spinal fluid, blood Wassermann, blood nitrogen, sugar, calcium, phosphorus, basal metabolic rate, and electrical reaction to degeneration are not significantly altered.

*Prognosis.*—The prognosis is very uncertain. Relatively mild cases may suddenly die from acute circulatory collapse characterized by sub-

sternal oppression and pain, and congestive failure. The majority of cases, if not of too long standing, will recover promptly upon the institution of a proper diet and routine attention to the peripheral neuritis. Long standing cases with extensive degeneration of the nerves and myocardium may not recover completely. Relapses during the course of an apparently satisfactory convalescence are not uncommon in spite of an adequate supply of vitamine B.<sup>17</sup> Regeneration of degenerated peripheral nerves takes place slowly regardless of the cause. The paralyses and sensory disturbances, however, may be functional and not due to degeneration of the conducting fibers. The administration of vitamine B extract will in these cases produce a miraculous return of function in a few days.

*Treatment.*—For the acute severe cases, rest and the prompt administration of a concentrated form of vitamine B are essential. A potent source of vitamine B is conveniently found in brewer's yeast. The diet should contain, in addition to the yeast, fresh milk, eggs, whole cereals which have not been subjected to decorticating milling nor to high temperatures under pressure, fruits, vegetables, especially beans, tomatoes, cabbage and potatoes. This diet will be adequate for the prevention and for the cure of the disease.

In circulatory collapse, the prompt and continued administration of the equivalent of about one ounce of dried yeast daily will be of more value than the usual circulatory stimulants, such as digitalis, caffeine, adrenalin, and ouabain, which, however, should be administered. Venesection has been reported as a life-saving measure.

In resistant cases, splinting the affected members while acutely painful will lessen the tendency to contracture. After convalescence is established, massage, heat and light exercise will probably hasten the return of function.

*Differential Diagnosis.*—The differential diagnosis should not be difficult. The peripheral neuritis may be indistinguishable from that of alcohol, arsenic, lead and other intoxications. But none of these are associated with the marked gastro-intestinal and circulatory manifestations which are so characteristic of beriberi. Edema and polyserositis from the nephritides, congestive failure, cirrhosis, mechanical and inflammatory causes are not accompanied by peripheral neuritis. Trichiniasis

must be excluded. Tabes dorsalis, pernicious anemia and amyotrophic lateral sclerosis have definite well known diagnostic criteria.

Infantile beriberi, ship beriberi, prison edema, epidemic dropsy and *maladie des jambes* are so closely related that differentiation is not practicable. Many will dispute, however, the identity of epidemic dropsy with beriberi.

#### THE CASE.

*History.*—Miss M. J., 47, housewife and seamstress, of Pulaski, Va., Hospital No. 74938, was admitted to the University Hospital, April 20, 1929, complaining of stomach trouble of thirty years' duration.

*Family History:* Not important.

*Past History:* The usual childhood diseases. Measles was followed by a cough which lasted for one year. She had been healthy and strong with these exceptions until the present illness.

*Present Illness:* Began thirty years ago immediately following a severe attack of typhoid which, with a relapse, lasted three months. At no time since then has she been entirely free from indigestion. This is characterized by epigastric fullness and gas after meals, with consequent distention, abdominal pain, and tenderness. For many years she obtained considerable relief from soda which helped her to belch up much gas. These attacks have come on almost every day after almost every meal. They are worse in summer.

In the attempt to avoid these pains, she gradually reduced her diet to toast, soups, an occasional egg, refined corn meal, oatmeal, and an occasional helping of fish or chicken. She practically eliminated fruits, fresh milk, meats, peas, beans, potatoes and other vegetables from her diet. She was usually slightly hungry, but was afraid to eat because of the inevitable gas and pain after meals. There were only occasional attacks of nausea and vomiting. Her elimination was fair.

For the first ten years of her illness there were no other significant symptoms. During the next ten years she noticed frequent periods of languor and undue fatiguability, with an occasional normal day. She had several attacks of syncope during the last third of this decade. These have not recurred.

For the past ten years, pains in the back of the neck, palpitation on exertion or from gas



after meals, and occasional slight dyspnea have been added to the above symptoms. The palpitation was troublesome enough to require medical attention ten years ago.

For the past five years there have been periods of varying length in which there was slight tenderness in the calves and thighs together with discomfort in the ankles while walking.

For the past three years there have been frequent periods during which the legs felt heavy and the muscles of the legs felt sore and stiff. This tendency was more marked in the summer.

Five months before admission there was a particularly troublesome period with her stomach which caused a still greater reduction in her diet, so much so that her physician told her that she was in danger of starving to death.

About three and one-half months before admission she noticed a rapidly increasing weakness and fatigability associated with very troublesome palpitation and dyspnea. These symptoms were so marked that crossing her room brought on a state of exhaustion which required a prolonged rest before normal breathing and relief from fatigue were obtained. During this period she noticed that exertion and, at times, the gas after meals frequently produced a feeling of severe substernal oppression and pain, which radiated down the left arm, was accompanied by a sense of impending dissolution, and was relieved by rest and sometimes by belching. She very soon noticed that her legs swelled markedly during the day, the edema reaching well above the knee, subsiding more or less completely during the night.

During this period of three and one-half months she noticed that her feet became more and more painful, the pain apparently centering in the bones of the ankles and shins. The gait became shuffling in character. Her calves and thighs became exquisitely tender. She could no longer maintain an erect position without holding to something. Her feet began to tingle and burn, at times feeling cold. There was a frequent sensation as of insects crawling on her feet and legs. Soon her fingers, wrists and left arm became weak, somewhat painful, tingling, and subjectively cold and swollen. She could no longer use her fingers for the performance of any skilled act.

She continued to have the gas, fullness, ten-

derness and pain after meals. By this time soda had ceased to produce any relief.

Seven weeks before admission she became bedridden. The edema subsided rather promptly but the discomfort in the abdomen and extremities continued. The legs were partially flexed in an effort to lessen the pain. There were occasional muscular twitchings in the left leg. There was a loss of position sense of the feet and legs in bed.

On admission she weighed 71 pounds. Eighteen months before her weight had been about 110 pounds. There was no history of alcoholism nor exposure to metals.

With the exception of moderate dysmenorrhea, frequent headaches, and nocturia 1-2, there were no other significant symptoms referable to the eyes, ears, nose, throat, genitourinary, cardio-respiratory, gastro-intestinal or neuro-muscular systems.

*Physical Examination.*—Physical examination showed a markedly emaciated white spinster of forty-seven years with a drawn expression, apparently in pain.

The eyes, ears, nose, throat, and neck were essentially normal.

The heart was not enlarged, but the sounds were distant and of poor quality, while the rate was regular at 78. There were no abnormal accentuations of sounds nor were there any murmurs. The patient could not be exercised. The blood pressure was 136/88.

The abdomen showed rather marked distention and tympany, with generalized tenderness on deep pressure and superficially. There was, at first, a questionable mass about the size of an egg in the region of the pylorus. This disappeared by the next day and did not reappear. There was no visible peristalsis and no organs were palpable. There was bilateral costo-vertebral tenderness, which was both deep and superficial and extended over the spine and down over the sacrum.

The legs were flexed at the knee and at the thigh. Efforts to straighten them were painful. All of the muscles were weak, especially the flexors of the thigh and the extensors of the knee. The flexors of the foot were almost powerless, giving a bilateral toe drop. There was exquisite tenderness of the muscles of the calves and thighs, more marked on the left than on the right. The bones of the legs and thighs and lumbar spine were painful upon light tapping. There was a marked lack of apprecia-

tion of tactile, thermal and pain stimuli in both legs. This was more marked below the knee than above and more marked on the left than on the right. There was a complete loss of position sense of the great toes.

The arms were weak and tender on deep pressure. The other sensory changes were not noticeable.

The biceps, triceps, radial and ulnar reflexes were normal. The abdominals were slightly increased. The knee jerks were increased, more markedly on the left than on the right. The ankle jerks were slightly increased on both sides. Both anterior tibial reflexes were present. The tendon reflex for the other toes was absent. There was no ankle clonus and the Babinski was negative.

The patient could not stand unsupported. Weight-bearing produced pain in both legs. This was more marked on the left and radiated up into the back.

The most striking neurological finding was a zone of circumoral hyperesthesia measuring 2 cm. in width. Several other patients were tested as controls.

*Laboratory.*—The urine on six examinations showed specific gravity variation 1.008 to 1.024, s.p.t. of albumin twice, no sugar, no acetone, an occasional hyaline cast four times, no erythrocytes nor pus in a catheterized specimen.

The blood showed: erythrocytes 3,700,000—3,900,000, leucocytes 5,600, p.m.n. 64 per cent, lymphocytes 36. The morphology of erythrocytes and platelets was normal, color-index .97, reticulated erythrocytes .1 per cent.

Gastric analysis showed 130 c.c. with 20° free HCl, 39° total acidity and a strongly positive benzidine test for blood. The following day only 15 c.c. could be recovered. This showed 50° free HCl, 68° total acidity, and a negative benzidine.

The spinal fluid showed a pressure of 100 mm., no globulin, normal sugar, 5 cells and a negative Wassermann.

The stools showed no mucus, no gross or occult blood, no increase in starch or fats and no parasites.

Cultures of stools for the beriberi bacillus, as described by Matsumara *et al.*,<sup>14</sup> and one culture for the typhoid group were negative. The blood Wassermann was negative. Blood urea was 40 mg. per 100 c.c.

X-rays of the lumbar spine, gastro-intestinal tract and gall-bladder were negative. A seven-

foot plate of the chest showed the diameter of the heart to be 33 per cent of the bony thorax. There was no prominence of either auricle or ventricle. The electro-cardiographic findings are grouped in Table I.

Tests for the electrical reaction to degeneration showed a normal response of all leg muscles. There was a suggestion that the response was more distinct on the right than on the left.

The temperature varied from 97° to 99.6°. The majority of readings were between 98° and 99°. The mean pulse rate was between 80 and 90.

*Treatment and Progress.*—Treatment consisted of belladonna, enemas, and a five-meal gastric diet at first. There was no improvement. On April 26 a high caloric diet was instituted.

May 1.—General condition somewhat improved; less abdominal discomfort; pains in the legs less acute.

May 3.—Stomach a little less troublesome; stronger but unable to walk; neurological signs persist but to less extent.

May 4.—High vitamine B diet begun together with a daily intake of 3000 calories.

May 6.—Patient up on her feet with only slight discomfort. She could not walk without support. The diet does not produce appreciable discomfort.

May 7.—Much stronger; can walk around bed by holding on to it; can rise to a standing position from chair without help of hands; slight pain in left ankle when standing.

May 12.—Slight swelling and pain in the legs returned.

May 15.—Marked return of weakness, edema, paresthesia, tenderness and pain in legs, with marked exacerbation of abdominal pain and distention after meals. This was attributed to too much walking up and down the ward. Put back to bed; enemas and belladonna resumed.

May 26.—Feels fine except slight tenderness of muscles on deep pressure. Neurological signs, i. e., anesthesia, paresthesia, toe drop, pain, etc., absent. Appetite excellent, can hardly get enough to eat.

June 6.—Feels fine. There is very slight tenderness of the muscles. Neurological signs entirely negative. Weight, 79 pounds.

June 7.—Discharged on high vitamine B diet. The patient was readmitted on October 1, 1929, because of a relapse. She had an ex-



cellent appetite, little indigestion and few discomforts in her extremities for about two weeks after returning home. She then had a return of the indigestion, diurnal edema, and peripheral neuritis in spite of adherence to her diet of milk, eggs, whole wheat bread, unrefined corn meal, etc. Yeast had been discontinued some weeks before leaving the hospital. She continued in the relapse with exacerbations and partial remissions of her symptoms until readmitted.

Physical examination was essentially the same as before except that the sensory disturbances in the legs involved only the feet and lower two-thirds of the tibiae and there was no loss of position sense. There was a new finding, namely, slight weakness of the muscles of the right lower quarter of the face with atrophy of the left half of the tongue which deviated to the left. She had lost about one-half pound in weight.

*Laboratory.*—Laboratory examinations of the blood, gastric contents, stool and urine were essentially the same. Fasting blood sugar was 82, blood phosphorus 4.4, blood calcium 9.5 mg. per 100 c.c. B.M.R. was 0 per cent. Blood pressure variations were 110/80 to 98/78. Negative reactions to degeneration were again obtained. Stools were still negative for beriberi bacilli.

X-rays of the G. U. tract were negative. X-rays of the teeth showed a devitalized upper left incisor and moderate pyorrhea of the remaining lower teeth, with a small metallic body adjacent to the lower right bicuspid, removal of which gave prompt relief from her headaches. Another gastro-intestinal X-ray was normal.

*Progress and Treatment.*—

October 3.—Condition unchanged.

October 4.—Brewer's yeast concentrate, drams two t.i.d. and special anemia diet.

October 5.—Sensory discrimination much improved, especially on left.

October 9.—Tactile sensation practically normal except over inner aspect of both feet. Dyspepsia better.

October 11.—Pain in legs, numbness and tingling in left arm, stiffness and pain in neck muscles on left, and dyspepsia, all worse.

October 21.—Has varied from day to day subjectively and, to a lesser extent, objectively. Compared with October 1st, neurologically, much improved. Dyspepsia somewhat better.

TABLE I  
ELECTROCARDIOGRAPHIC FINDINGS

Date	Rhythm	Rate	P. R. Interval	Axis Deviation	T-Waves			P-Waves Lead II	QRS Complexes			Clinical Condition
					T <sub>I</sub>	T <sub>II</sub>	T <sub>III</sub>		Potential	R <sub>I</sub>	R <sub>II</sub>	
5-2-29	Normal	100	.18 sec.	None	Flat	Flat	Flat	+2 mm.	Low	+2 mm.	+4 mm.	Unable to walk.
5-10-29	Normal	90	.19 sec.	None	Flat	*Flat	Flat	+2 mm.	Slight increase	+2 mm.	+9 mm.	Much improved.
6-3-29	Normal	75	.18 sec.	None	+1 mm.	*+3 mm.	+1 mm.	+2 mm.	No change	+2 mm.	+9 mm.	Convalescence well established.
10-3-29	Normal	100	.18 sec.	None	+½ mm.	*Flat	-½ mm.	+2 mm.	Low	+2 mm.	+6 mm.	Ninth week of relapse.
10-16-29	Normal	80	.19 sec.	None	+1 mm.	+1 mm.	Flat	+2 mm.	Low	+2 mm.	+4 mm.	Improvement moderate.
10-23-29	Normal	85	.18 sec.	None	+½ mm.	Flat	Flat	+2 mm.	Slight increase	+4 mm.	+6 mm.	Neurologically better.
11-4-29	Normal	90	.17 sec.	None	+½ mm.	+½ mm.	+½ mm.	+2 mm.	Slight increase	+4 mm.	+7 mm.	G. I. symptoms persist.
11-10-29	Normal	95	.19 sec.	None	+1 mm.	+1 mm.	Flat	+2½ mm.	Slight increase	+4 mm.	+9 mm.	Partial relapse.
												Little change. Convalescence not well established.

\*Attention is called to the elevation of the T-Waves, especially T<sub>II</sub>, after convalescence is established, and to the T-Wave depression before convalescence and during a relapse.

October 27.—Better than at any time since relapse.

November 3.—Exacerbation of dyspepsia, paresthesias, and hypoaesthesia of feet.

November 8.—Upper lip continues hyperaesthetic; lower lip normal. Right facial weakness with left hemiatrophy and deviation of tongue persist. Flexors of the left thigh weaker than right. Light touch, pain and temperature discrimination diminished in both feet and ankles, more marked on left.

November 10.—Discharged. Improvement not striking. To continue yeast, rest and balanced diet at home. Prognosis for cure apparently remote.

#### DISCUSSION AND CONCLUSIONS.

1. A case of chronic beriberi is presented, together with notes on the incidence in Virginia and the mortality statistics in the United States and Japan.

2. The onset of the presenting symptoms during a prolonged illness with typhoid fever is emphasized as being unique in the literature. It is surprising that many such cases are not on record when one considers the markedly deficient diet until recently in vogue in the treatment of typhoid. Cowgill<sup>15</sup> sensed the likelihood of its occurrence when he said, "It is quite possible that certain types of convalescents owe their anorexia to too prolonged subsistence on a diet low in antineuritic vitamin."

3. The small QRS complexes and flattened T-waves of the electrocardiograms are consistent with the findings of Scott and Herrmann.<sup>4</sup> Aalsmeer and Wenckebach<sup>16</sup> found nothing characteristic in the electrocardiograms. The striking improvement in the T<sub>11</sub>-waves (Table I) paralleling the clinical improvement in the month from May 3rd to June 2nd is most interesting, and may, if confirmed by others, prove useful.

The further lowering of the T-waves during the relapse and their failure to increase appreciably during the observed period of little clinical improvement (October 1st to November 10th) suggests a prognostic use of the electrocardiogram.

The absence of enlargement of the heart, even with the signs of slight heart failure, is in accord with the reports of Hepburn<sup>11</sup> and of Scott and Herrmann.<sup>4</sup>

4. Relapses during satisfactory convales-

cence while under treatment were called beriberic residual paralysis by Wright.<sup>17</sup>

5. The presence of knee jerks and the rapid sensory improvement following the administration of vitamin B in this case find precedence in the report of Hepburn,<sup>11</sup> who noted the presence of knee jerks in patients whose legs and lower abdomen were anesthetic to pin prick and, further, the total disappearance of anesthesia in five days after the administration of high vitamin B diets.

6. Circumoral hyperaesthesia in this case is analogous to the typical circumoral hypoaesthesia.

7. Repeated efforts to isolate the beriberi bacillus of Matsumura<sup>14</sup> were unsuccessful. There were numerous *B. coli* communior which, however, failed to agglutinate with the patient's serum.

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17. 7 above, P. 433.

#### CONSIDERATIONS IN THE PREVENTION OF THE RECURRENCE OF INGUINAL HERNIAS.

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The attention of modern surgeons is focused upon obtaining successful herniorrhaphies in much the same manner as it was hundreds of years ago. It is a far cry, however, from the inevitable castration, which was perhaps a lesser evil associated with the hernia operation of a distant day to the attempts to pre-



vent the small percentage of recurrences which occur at this time. The literature is voluminous and it is to be noted that the greater part of it deals with the type of operation, suture material and causes of failure. This is probably as it should be, but still operative and anatomical problems relative to inguinal hernias differ widely and are solved quite differently. The considerations which follow have been very useful to me, yet they are probably only variations of modern surgical thought and experience. For convenience, this discussion will start with the sac and conclude with the advocacy of local anaesthesia as an aid in the prevention of recurrence.

Inguinal hernias are usually defined as direct or indirect inguinal hernias. The definitions are intended to convey the manner of protrusion and the position of the hernia. Thus an indirect hernia makes its exit through the internal abdominal ring and passes down the inguinal canal. The peritoneum composing its sac is believed to be congenital in origin and the result of incomplete closure of the tunica vaginalis in the foetus, after the descent of the testes. Only a small dimple may remain at the internal ring or the tunica vaginalis may remain patent down to and completely over the testicle, depending upon the success attending its closure in the foetus. Whatever its size, the important point to be noted is that the conditions favorable to the production of a hernia are present. If the tunica remains completely open, then the hernia will be present at delivery, but if only a dimple remains the constant variations of pressure in the abdomen will gradually increase its size and, as the planes of cleavage of the inguinal canal offer very little resistance, there is little obstruction to the gradual dissection and enlargement of the sac down the canal. It is commonly accepted that the sac or potential sac of an indirect hernia is present first, and is the cause rather than the result of the muscle and fascia defects associated with it.

A direct inguinal hernia is defined as a hernia whose sac protrudes directly through the abdominal wall medial to the inferior epigastric artery. The origin of the sac of a direct hernia and the bearing it has upon recurrences have been noticeably neglected. The muscular weaknesses and fascial defects associated with direct hernias are commonly thought to be the cause, rather than the result

of this abdominal wall defect. This statement, however, invites an investigation of the deployment of the peritoneum of this area.

#### THE PERITONEUM OF THE INGUINAL REGION

When performing a supra-pubic cystostomy for any purpose it is necessary to dissect the peritoneum off of, what may be termed for practical purposes, the ventral surface of the bladder, when it is distended. The reflection of the peritoneum from the ventral wall of the abdomen over the pelvic viscera can be easily demonstrated during this operation. The amount of peritoneum that must be removed from the bladder is extremely variable. In some cases the peritoneum extends down to and covers the retropubic pad when the bladder is distended, while in others very little has to be pushed back in order to expose the bladder. Therefore, in those cases in which the reflection is very low when the bladder is distended, there must be considerable redundant peritoneum when the bladder is empty. Let us transfer the scene just a few centimetres laterally to the ventral edge of the paravesical fossa just where the peritoneum makes its reflection. If a similar situation should exist here, then there would be a certain amount of redundant peritoneum just proximal to the lacunar ligament and immediately beneath the conjoined tendon. This redundant peritoneum impresses me as being the potential sac of a direct hernia. When it is present, increased intra-abdominal pressure must distend and fill it out. The path of least resistance which it can follow is lateral till it reaches the inguinal canal, where it either emerges from the conjoined tendon, forcing that structure medially or descends in the canal.

Of course, conditions favorable for its dissection must be present. If the origin of the transversalis and internal oblique muscles on the inguinal ligament is low, then the arch of the conjoined tendon is short, the tendon itself is better developed and a direct hernia is less likely to occur. From this reasoning, the conclusion is inevitable that the sac of a direct hernia is a product of foetal development rather than the result of muscular weakness. Both factors must be present in direct and indirect hernias, but the former, it seems, predominates.

This fact may be useful in preventing recurrences. It is notorious that the majority of recurrences of both direct and indirect ingui-

nal hernias exist as direct hernias. Attention to the redundancy of the peritoneum in this area may help eliminate a factor in failures. In indirect inguinal hernias this reflection can be felt easily through the internal ring. If it is too low, then the inguinal canal can be opened more widely, the redundant peritoneum removed and the reflection lifted to a higher level. In direct hernias, the reflection itself is the object of surgical attack and, after as much of it as possible has been removed, it may be elevated by suturing the neck of the sac as high up as possible under the transversalis and internal oblique muscles.

Removal of this redundant peritoneum at the reflection and its suture high up under the muscles have certain advantages other than the protection of the sac itself. First, it will stretch the peritoneum so as to eliminate any small sacculations which may be potential sacs; second, it will remove the peritoneum from the common side of recurrence, which, in the interim required for the intra-abdominal pressure to stretch the peritoneum again, will have a better opportunity to heal more strongly; and, third, it will apply the peritoneum more smoothly and closely to its overlying muscles. The latter is of some importance because the peritoneum has less chance of deflecting or penetrating muscles or fascia if it is evenly and closely applied to it than if it is loosely attached by areolar tissue.

Three fundamental principles are involved in all of the commonly accepted herniorrhaphies in use at present, namely, high and firm ligation of the sac, successful closure of the defect in the abdominal wall, and the narrowing of the external ring. To these I would suggest a corollary: that attention be paid to the peritoneum of the floor of the inguinal canal, in order that its reflection be removed from the common site of recurrence, and the pressure upon the reconstructed wall be uniformly distributed.

#### CLOSURE OF THE DEFECT

It is reasonable to assume that any of the operations in use at present would be invariably successful if the defect in the abdominal wall could be effectively and permanently closed. Russell<sup>1</sup> and others have advised against closing this defect altogether, presuming that the removal of the cause is sufficient

to constitute a cure. This is illogical, because the results of a cause often require correction, especially if they are mechanical in nature. The argument that in the usual operation, the complete opening of the canal invites recurrence, does not have sufficient weight. Just as unreasonable is the method of Andrews<sup>2</sup> in which the transversalis fascia is used as the sole support of the defective abdominal wall in those cases in which there is no atrophy of the muscles of the conjoined tendon. There is no advantage in using a variable and weak structure, often rudimentary in this area and difficult to find, when more bulky and adequate structures are at hand, which can be used without difficulty or harmful effects.

However, it is commonly accepted that those procedures in which the abdominal defect is to be obstructed by muscle and fascia are surgically sound. There is no reason why this area should be left unprotected when the whole abdominal wall is similarly constructed. Many operations have been devised to accomplish this, practically all of which unite the inguinal ligament, the internal oblique and transversalis muscles and the fascia of the external oblique. A certain amount of failures continue to occur and, when not the product of faulty technique or judgment, they have been attributed to the failure of these structures to unite, especially the union of the muscles to the inguinal ligament. In order to facilitate the union of these structures, living and dead fascial grafts have displaced the use of silk, catgut and kangaroo tendon and the results obtained so far indicate that this type of suture may prove superior to catgut or the others.

In a recent publication,<sup>3</sup> I indicated several mechanical factors that may discourage the union of these structures, and suggested fascia to fascia apposition as a means of obtaining stronger and better closures, thus eliminating many of the difficulties associated with the use of fascial grafts. The procedure described uses catgut as suture material, but differs from other methods of fascia to fascia apposition, notably imbrogation, in that the medial portion of the aponeuroses of the external oblique is sutured flat upon the internal oblique and transversalis muscles immediately beneath it and then these two structures are joined to

1. Russell, R. H.: Inguinal Hernia and Operative Procedure. S., 9 and 10, 1929, x1, 605-609.

2. Andrews, Edmund: Simplified Herniotomy. *Surgical Clinics of North America*, 5, 4; Aug., 1925.

3. Jacobson, Philip: Fascia to Fascia Apposition in Herniorrhaphies. *Virginia Med. Mo.*, 56, 7; Oct., 1929.



the inguinal ligament as if they were one, apposing the medial surface of the inguinal ligament to the medial portion of the aponeuroses of the external oblique. Thus, wide areas of living fascia are brought together instead of edges, and since all sutures are placed in heavy fibrous tissue the tendency of the sutures to cut through is lessened, and the apposition can be maintained until strong fibrous union of the fascias is attained. One of the advantages claimed for this procedure is that the tension formerly carried by the muscular structures alone is by this means distributed between the muscles and the aponeuroses, and the latter might even carry the greater burden. The suggestion was made that still better results might be obtained if this tension could be reduced or eliminated before the patient left the table.

#### REDUCTION OF SUTURE-LINE TENSION

Further reflection upon this point convinces me that not only is this relief of tension at the suture-line desirable, but also necessary, in order to avoid certain anatomical incompatibilities after the herniorrhaphy is completed. It is obvious that if the structures to be joined to the inguinal ligament can be maintained there without tension, fibrosis and healing will proceed at a greater speed, resulting in a firmer and more complete union. The reduction of this tension has been mentioned by Gersch,<sup>4</sup> Keynes,<sup>5</sup> and others. It can be obtained by dissecting the aponeuroses of the external oblique from the aponeuroses of the internal oblique where these two sheets of fascia are joined over the rectus muscle, and making a longitudinal incision in the aponeuroses of the internal oblique about three or four inches long. The transversalis and internal oblique muscles can then be sutured to the inguinal ligament without tension. However, the question whether under even these favorable conditions the muscles will unite with the fascia, is still under dispute. An objection to this procedure is that it does not utilize adequately the strongest and most useful structure for defending the hernia—the aponeuroses of the external oblique. If this structure is to serve a useful purpose, the thicker medial part must be sutured to the inguinal ligament and, when

this is accomplished, a certain amount of tension will be present. The amount of this tension is the sum of three forces: first, the intra-abdominal pressure; second, the tension required to pull it over and anchor it to the inguinal ligament; and, third, the sudden strains produced by the contraction of the rectus muscle. All three of these strains comprise too great a burden, and they are likely to remain because certain anatomical facts cannot be altered.

These are two in number: first, the distance between the inguinal ligaments cannot be reduced; and, second, the fascia across this area cannot be lengthened. If the area under discussion be considered as a trapezoid, the divergent sides are formed by the inguinal ligaments and the roof and base by parallel lines between the anterior superior spines and the pubic spines. All these structures are fixed and, while the inguinal ligament can be drawn medially to some extent, its tendency is to return to its former position. The area of this trapezoid is covered by a layer of fascia which is tendonous in nature. This is also fixed and tends to remain one size. Nature has provided for the symmetry and maintenance of the body mechanics in this manner. Tendons and supporting planes of fascia cannot be stretched; otherwise, the power of locomotion and the ability to retain the body form could not exist. The fascias between the two inguinal ligaments cannot be stretched and, in order to lengthen them, because obviously the distance between the bony structures cannot be reduced, it is necessary to cut them just as any other tendon or fascia must be incised in order to lengthen it. Therefore, if a defect exists in this area and its closure is desired, then the fascia must be cut and a second defect produced which will permit closure of the first.

The logical location to do this is near the medial border of the rectus sheath and, when all the fascias forming the sheath are opened by a longitudinal incision extending proximally about four inches from the pubis, the inguinal defect can be closed without tension and with the added advantages that the strains and forces of the pregnable area will be equitably distributed and that a point of elasticity will be provided to take care of any sudden strain.

The objection that this procedure will weak-

4. Gersch, Leo: A Simple Plastic Method of Herniotomy in Muscular Atrophy of the Inguinal Canal. *Zentralblatt für Chirurgie*, 53, Sept., 1926.

5. Keynes, Geoffrey: The Modern Treatment of Hernia. *British Medical Journal*, 3447, Jan. 29, 1927.

en the rectus sheath and muscle is hardly tenable. The muscle exerts its force in the direction of the incision and, as none of its attachments to the sheath have been interrupted and the muscle itself has not been injured, certainly its usefulness will not be impaired. As for the sheath, its ability to withstand sagittal strains remains unaltered; a slight weakness to anterior pressure will be created, but this will be limited by the shortness of the incision, the strength of its angles and the presence of the rectus muscle, and for practically the same reasons its lateral strength will remain unimpaired. Moreover, a certain amount of fascial regeneration will take place during the convalescence, fixing the opening in the sheath and strengthening the angles of this incision. Another protection is the transversalis fascia behind the rectus, intimately associated with the peritoneum. While this fascia is absent or underdeveloped along the inguinal canal, it is practically always a strong layer behind the rectus, where its usefulness has not been affected.

It would be impertinent at this time to state that incision through all the ventral fascias of the rectus sheath in the manner described should be adopted as a routine procedure in inguinal herniorrhaphies. Further experimental and clinical work is necessary, but the cases done so far have demonstrated the value of this maneuver.

#### DISPOSITION OF THE CORD

The disposition of the cord is still subject to differences of opinion. Some operators always transplant the cord; others never do. The accepted practice seems to be that the cord should be transplanted if the hernia is direct, and that when an indirect hernia is present, narrowing of the external ring is more desirable. This agrees with the measures to be taken to prevent recurrence, according to the position of the reflection of the peritoneum from the ventral wall of the abdomen to the pelvic viscera. When a direct hernia is present, the reflection is low and the wall of fascia in front of it must be made complete. If the hernia is indirect and the reflection is also low, then transplantation is indicated because the same wall is required to prevent recurrence. In indirect hernia with a high reflection, transplantation is not necessary.

#### CLOSURE OF THE EXTERNAL RING

In those cases in which the cord is not transplanted, successful narrowing of the external ring must be obtained. Accordingly, an aperture is left through which the spermatic cord can make its exit without constriction, presuming that this is the avenue of exit of a recurrence. If, however, one will run his finger beneath this aperture which is to be the new external ring, he will often find that despite the smallness of the opening, the finger enters the scrotum quite easily. The finger is following the path of a recurrence; it passes beneath the aperture, not through it, and enters the scrotum. This is due to the fact that no matter how small the external ring may be made, the distance that separated the insertions of the two pillars of the external ring on the pubic bone remains the same and the ultimate effect of thus closing the external ring is no more than to draw the fascia tight between these two insertions; this leaves beneath it the wide gap between the fascia and the bottom of the groove of the pubic bone, in the manner of a cord subtending the arc of a circle. In large hernias and those of long standing, the insertions of the two pillars are far apart and between them is the groove of the pubic bone which under ordinary circumstances is large enough to accommodate the spermatic cord alone. It is obvious that when a large hernia sac is present in addition, the groove must be wider and deeper and it is through this that the finger passes quite easily.

Therefore, in order successfully to close the external ring, not only must the aperture be made as small as possible, but the insertions of the two pillars must be brought closer together. This can be done by suturing the aponeurosis on each side of the cord to the pubic bone, in this groove. Sometimes it will be necessary to suture the aponeurosis on each side of the cord to the bone, but more often one side, usually the medial, will be sufficient. The test of its effectiveness can be easily made by passing the finger alongside the cord under the fascia towards the scrotum, and in doing this the finger is duplicating a hernia sac in its effort to reach the scrotum.

#### CLOSURE OF THE SKIN

Closure of the skin will hardly have any effect upon the herniorrhaphy beneath except in case of infection. The wound should be dry, and primary healing is essential. Some-



times a quantity of liquid fat is present, the result of manipulation. This may interfere with union, and may be removed by pouring a little ether in the wound and quickly sponging it out.

### LOCAL ANESTHESIA

The use of local anesthesia in herniorrhaphies has been reserved for those cases which would suffer from the systemic effects of a general anesthetic. There are certain advantages to be derived from the use of local anesthesia in herniorrhaphies in all cases. Tinker and Sutton<sup>6</sup> have enumerated several of these which I wish to emphasize.

In desperate and difficult cases time must be considered, but where local anesthesia is used a long period on the table will have no effect on the result. Bleeding will be reduced, allowing a clearer field to work in, thus partially compensating for the extra time required by this type of anesthesia. However, its outstanding contribution is that it removes completely the most prominent post-operative danger incidental to any plastic procedure, that of breaking or cutting through of the sutures. The tremendous strains upon the suture lines imposed by post-anesthetic restlessness, vomiting, wrenching and coughing are entirely avoided, certainly a desirable feature after all the effort that has been expended.

### COMMENT

These considerations are presented more as opinions than as facts. They will have accomplished their purpose if they renew the discussion of the means of obtaining successful herniorrhaphies, using structures already present and with convenient suture material. There is no quarrel with the use of dead or living fascial grafts except the difficulties entailed by the use of these materials. It may be that time will bring a solution to these difficulties and facilitate their use.

The operation I have previously recommended seems a reasonable and logical procedure. It is simple, requires no special materials or unusual technical ability, and so far has been uniformly successful.

At present, the sac is the subject only of extirpation. In large hernias, which are most likely to recur, the sac is quite large and rep-

resents an extensive area of peritoneum. Perhaps the future may find some use for this sheet of material. The peritoneum when injured is very apt to proliferate fibrous tissue from its subserous layer, a phenomenon which is familiar as adhesions. Peritoneum differs from fascia, however, in that it stretches and accommodates itself to its surrounding tissues, but removal from its normal environment may alter its growth so as to serve a useful purpose in the abdominal wall from which it has been removed. I have used the sac along with catgut on two occasions.

### CONCLUSIONS

1. The sacs of both indirect and direct hernias are the results of foetal development, and therefore precede the muscle and fascia defects produced by them.

2. The reflection of the peritoneum from the abdominal wall over the pelvic viscera is variable in position and, when very low, is often the potential sac of a direct hernia or a recurrence.

3. Longitudinal incision through all the anterior layers of the rectus sheath will relieve the tension at the suture line along the inguinal ligament, provide a point of elasticity to take up sudden strains, and will not weaken the abdominal wall.

4. Successful narrowing of the external ring depends upon the distance separating the insertions of its pillars in the pubic bone.

5. The disposition of the cord depends upon the position of the reflection of the peritoneum.

6. Local anesthesia is the anesthesia of choice in inguinal herniorrhaphies.

111 *Monroe Street.*

### AN UNDESCRIBED GENITAL LESION.\*

By T. LATANE DRISCOLL, M. D., Richmond, Va.

I have stated before this body on a previous occasion that I believe our classifications of chancroids is essentially incorrect.

I wish to submit, with apologies, that it is very rare in my experience to find a lesion that, with careful study, may not fall into half dozen or more classifications that are certainly not chancroids as generally understood.

The lesion I am particularly interested in apparently falls in none of the classifications I am acquainted with. The lesion varies in size from a dime to half dollar, occurring

6. Tinker, M. B., and Sutton, H. B.: Operation in Difficult Hernias with Special Reference to Fascial Transplant and Local Anesthesia. *New York State Journal of Medicine*, 24:17, Aug., 1924.

\*Read by title at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

most frequently in the preputial sulcus. If venereal in origin, the period of incubation varies from three days to several weeks. They are painful for a few days, after which they are wholly painless, or only a very slight sense of discomfort. They may persist for months, and even several years. There is a bilateral lymphadenitis with no suppuration, and only moderately enlarged glands. There is no marked inflammatory area surrounding the lesion, and, consequently, not the edema of fore-skin often found. There is no suppuration within the lesion, induration is slight, and there is almost no destruction of tissue, and, as a result, the sore is about on the skin level; yet I have seen exceptions to this general rule in a super-imposed streptococcic infection.

The lesion, when excised, is surrounded by a slightly elevated tough wall; the line of demarcation is rather conspicuous. The tissue seems uniformly firm and dense.

Microscopic tissue section shows an ulcer bordered laterally by a stratified squamous epithelial surface with very little superficial keratinization, definitely limited internally by an intact basement membrane. A fibrous connective tissue underlies the ulcer and epithelium, and extends to the margin of excision. The base of the ulcer is composed of necrotic debris and an exudate in which polynuclear leucocytes predominate. The underlying connective tissue, in which a few smooth muscle cells occur, is extensively infiltrated with leucocytes and mononuclear wandering cells. About the ulcer the infiltration is diffuse, and here polynuclear leucocytes predominate. Farther from the ulcer the infiltration tends to be focal in distribution.

Plasma cells predominate, with smaller numbers of macrophage wandering cells, lymphocytes and polynuclear leucocytes associated with moderate fibroblastic proliferation. The infiltration lacks the strikingly perivascular distribution seen in chancre. *Treponema pallidum* are not seen in silver impregnated sections. There is no histological evidence of tuberculosis or of any specific process.

Interpretation: Nonspecific subacute inflammatory lesion.

Bacteriologic study shows an occasional streptococcus, staphylococcus, and colon bacillus, which in my opinion simply represents contamination, and not primary infection.

*Grace Arcade Building.*

## Proceedings of Societies

### Virginia State Board of Medical Examiners.

At the semi-annual meeting of the Board in Richmond, early in December, the following doctors were granted certificates to practice medicine in Virginia, either by examination or through reciprocity:

Dr. Carl Flory Coffman, Geer, Va.  
 Dr. Wendell Phillips Collette, Washington, D. C.  
 Dr. Alfred C. Fentress, Norfolk, Va.  
 Dr. Carson Lee Fifer, University, Va.  
 Dr. Charles Conrad Freed, Roanoke, Va.  
 Dr. Floyd Wesley Green, Durham, N. C.  
 Dr. John Tilghman Hazel, Clarendon, Va.  
 Dr. William Marion Hoffer, Hagerstown, Md.  
 Dr. Louis Aloysius Houff, Norfolk, Va.  
 Dr. John Anderson Jackson, Portsmouth, Va.  
 Dr. Dean Cicero Jones, Chilhowie, Va.  
 Dr. Edward Sydney Jones, Washington, D. C.  
 Dr. Thomas Floyd Kennan, Raphine, Va.  
 Dr. N. F. McNorton, Yorktown, Va.  
 Dr. Mansell Herbert McShann, Washington, D. C.  
 Dr. William Alexander Murphy, Staunton, Va.  
 Dr. Horatio Whitman Newell, Richmond, Va.  
 Dr. Clifton Frederick Nelson, Lawrenceville, Va.  
 Dr. David Stewart Polk, Philadelphia, Pa.  
 Dr. James Warren Sayre, Newport News, Va.  
 Dr. Willis M. Sprinkle, Marion, Va.  
 Dr. Robert Paul Stock, Stonega, Va.  
 Dr. Ashley Obre Thomas, Washington, D. C.  
 Dr. Martillus Hollis Todd, Lynch, Ky.  
 Dr. Jacob Wilkins, Philadelphia, Pa.  
 Dr. Lyman A. Lydic (osteopath), Dayton, Ohio.

Dates selected for the next meeting of the Board are June 17-20, inclusive, in Richmond. Dr. P. W. Boyd, Winchester, is president, and Dr. J. W. Preston, Roanoke, secretary.

### The Loudoun County (Va.) Medical Society

Held its February meeting in Leesburg, with Dr. H. P. Gibson, of that place, as host. After the reading of papers, a buffet supper was served. Dr. G. F. Simpson, Purcellville, is president, and Dr. W. O. Bailey, Leesburg, secretary.

### The Lee County Medical Society

Held a meeting recently, and elected Dr. J. B. Muncy, Pennington Gap, Va., as president to succeed Dr. P. D. Pence, deceased. Dr. W. J. Innes, Pennington Gap, was re-elected secretary.

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All regular medical societies in the State are urged to send us reports of their meetings and names of officers to be used in this Department.



## President's Message

At the suggestion of its Council, the Medical Society of Virginia has decided to send two copies of the *VIRGINIA MEDICAL MONTHLY* to every person who is licensed to practice medicine in the State of Virginia, whether or not that person be a member of our society. The reason for sending out these extra copies of the *VIRGINIA MEDICAL MONTHLY* is to acquaint those of the Medical Profession, who are not members of the Medical Society of Virginia, with the plan which this society has for improving the efficiency and standing of all practitioners of medicine in this State.

While it is only proper that a society should first consider its own members and should first give them the privilege of post-graduate education by means of clinical instruction, still the Medical Society of Virginia realizes that in order to improve the general health of the State, and the standing of the profession, it will be necessary to also consider the practitioners outside of the Society. A number of these, such as the Negro physicians, are not eligible to membership in the Medical Society of Virginia, but it is realized that they occupy an important place in preserving the health of our people. Our Department of Clinical Education, therefore, hopes to extend its clinical work so as to give facilities for clinical instruction to colored physicians, if they desire to take advantage of them.

The only return that the Medical Society of Virginia will ask is for cooperation with its program, which should benefit all practitioners in Virginia. In order to obtain this cooperation it is necessary to improve the local organizations of the profession. So it is hoped that the medical men both white and colored, will join their local organizations, which will aid them, not only in obtaining post-graduate instruction, but will increase their prestige in the community. I think I can promise cooperation with these local organizations from the Medical Society of Virginia, whether they are eligible for membership in our society or not, it, of course, being understood that the local organizations, on their part, will fall in with the general policy of the State Medical Society and the American Medical Association.

For the benefit of the doctors who are not members of the Medical Society of Virginia, I am going to take the liberty of repeating the

program as recently adopted by the Department of Clinical Education of the Medical Society of Virginia, trusting that the members of the society will pardon the repetition. The Department of Clinical Education is made up of representatives from the Medical Society of Virginia, the Medical Department of the University, the Medical College of Virginia, and of the State Department of Health. Its purpose is to furnish post-graduate medical education and for that purpose to bring about cooperation and correlation of the efforts of these different organizations. It proposes to start by furnishing clinical education in the following manners:

1. To give clinical instruction, for one day, in different parts of the State so that the local doctors will not be taken from their work for any lengthy period.
2. To furnish clinics at the Annual Meeting of the Medical Society of Virginia.
3. To cooperate with the Medical Departments of the University of Virginia, and the Medical College of Virginia, in promoting the clinics which they have already very successfully conducted.
4. To cooperate with the State Health Department, and the State Department of Public Welfare in holding special clinics at various State institutions. The Health Department has already held such clinics for colored physicians at Piedmont Sanatorium, and it is hoped similar clinics may be held elsewhere.
5. To cooperate with the local medical societies in the larger cities, in holding clinics which will be open to any member of the State Medical Society, but are especially for the benefit of the doctors in the Congressional Districts in which the clinics are held.

We sincerely hope and believe that the program just outlined will be of great service to the Medical Profession in Virginia, and feel we have the right to expect full, earnest cooperation from every local medical society and from each individual doctor in the State.

CHARLES R. GRANDY, M. D.,  
*President, Medical Society of Virginia.*

# Department of Clinical Education

## OF THE MEDICAL SOCIETY OF VIRGINIA

### Extension Work in Graduate Education.

Arrangements are going forward steadily for the County Society Clinics to be given in various sections of the State during the coming Spring, Summer and Fall.

The preparatory work for these is necessarily slow, as much correspondence is necessary, but the spirit of co-operation evidenced has been most gratifying and encouraging.

It is urged that any County Society, or in fact any individual members, desirous of having a clinical meeting in any particular locality, advise this Department, and its services will be immediately available for cooperation with the local County Society.

### A REPLY TO AN ENQUIRY

In order that the aims and ultimate objectives of this Department may be thoroughly understood by our entire membership, opportunity is herewith taken, because every practitioner in the State is being reached by this issue, through the courtesy of our President, Dr. Grandy, to repeat these, as given below in a summary of a recent reply to a letter of enquiry from the Director of Study of the Commission on Medical Education of Connecticut. A brief summary of this reply is as follows:

1. The Department of Clinical Education was instituted at the last annual meeting of the State Society, with the purpose of keeping practicing physicians abreast of current developments in Medicine and Surgery;
2. Its main features comprise methods, such as clinical meetings, etc., in various local centers, sponsored by the local County Societies, and more extended and specialized Post-Graduate Educational and Clinical courses by the two Medical Colleges of the State;
3. Other collaborative features that will be put into effect gradually are professional educational courses, published regularly in the MONTHLY, radio addresses to doctors, and personal clinical privileges secured on stated days in local hospitals for members of the profession;
4. An interchange of Clinicians from one district, or city, or college to another, as occasion offers;

5. These, and other methods of practical clinical education will be used, as opportunity affords, to meet existing needs in special localities;
6. The Department of Clinical Education is representative of all personal and professional interests in the State, being composed of three representatives from the State Society, one each from the two Medical Colleges, one from the State Department of Health, and an Acting Executive Secretary, together with an Advisory Board, and the assistance of the ten Councilors representing the ten Congressional districts in the State;
7. The basic unit of service is the County Society, with the State Society as sponsor and the connecting link, and the Department of Clinical Education as the instrument in fusing and energizing the various activities; and
8. The aim, briefly stated, is to use these methods for cooperative professional study for individual benefit, and the advancement of the profession.

It is impossible to realize at once all of these objectives. At first, the ardent hope is to arouse the practitioners of the State to the obligations of their profession upon themselves, and their responsibility to themselves and others less favored by professional contacts, and concurrently stimulate interest in their local and State Societies. Unification of action is sought, for its power and influence are irresistible. Disease can no longer be fought successfully by the physician, alone or unaided—even though he be a Hippocrates or Jenner—for its approaches are many and diverse, and its prevention and repulsion can be accomplished only by a council of many men of many minds. Individualism is no longer possible or wholly effective, either in life or in disease.

### FEBRUARY MEETING

The February meeting of this Department was held in conjunction with the Councilors. All of the members were present, and reports were given from all of the different sections of the State. From these sources of information



through the Councilors, the Department is proceeding to formulate clinical meetings for the Spring and Summer months. An announcement from Mr. Frank Bane, Commissioner of Public Welfare of Virginia, was made, stating that, with the cooperation of the officials, the clinical material in the State institutions under his direction, was offered through the Department of Clinical Education, to the medical profession of Virginia for clinical use and study.

This statement, carrying as it did, the opportunity for study of more than seven thousand clinical cases of all types and varieties of disease-conditions, was received with great pleasure and appreciation.

Dr. C. R. Grandy, President of the State Society, offered a resolution of thanks to Mr. Bane, which was unanimously voted. This generous action on the part of the commissioner and State officials will be most genuinely appreciated by the profession of the State, for it is the first time in our medical history, that these institutions have been offered as a whole, for professional use and clinical study. Thus, there will soon be mutual introductions professionally; the officials and the institutions to the doctors, and the doctors to them.

The positive benefits directly derived on both sides will be equaled reflexly in the future only by a fuller and more appreciative professional evaluation of each other. It will take time to realize upon the values of this wonderful opportunity now offered, but the future will show great and increasing dividends of possible and realized assets in a better and a more sympathetic understanding by the profession of many phases of disease.

#### CLINICAL MEETINGS

—On March 11th, the Southside Virginia Medical Association, composed of a membership from twenty county medical societies in the surrounding territory, will convene in the new auditorium of the Central State Hospital at Petersburg, of which Dr. H. C. Henry is Superintendent.

This session of the Association will inaugurate the first of the General State Institutional Clinics in cooperation with the Department of Clinical Education of the State Society.

Dr. J. A. Grizzard, Drewryville, Va., is President of the Association, and Dr. R. L. Raiford and Dr. Wright Clarkson have charge of the program, which will consist of various

clinics and medical discussions, a detailed list of which is being sent out to the members and all interested physicians in this locality. Briefly summarized, the program is as follows:

The meeting will begin at 2:00 P. M., and a symposium of five papers on syphilis, including one from invited guest, Dr. C. C. Coleman, will continue until 4:30 P. M.; from 4:30 to 5:30 P. M. a medical clinic will be held under the direction of Dr. Mason Romaine, and during the same hours a surgical clinic will be held under the direction of Dr. George H. Reese, and from 5:30 to 6:30 P. M. a psychiatric clinic will be held with Dr. William A. White, Superintendent of St. Elizabeth's Hospital, Washington, D. C., invited guest, who will make the principal address of the occasion.

This is the first time that any one of the State Institutions has been opened for the benefit and instruction of the profession, and the success of this meeting (which unfortunately occurs before publication of this issue) will be an assurance of the future value of this vast amount of clinical material for the advancement of medical progress in the State. —On March 31st, the Norfolk County Medical Society, in conjunction with the Department of Clinical Education of the Medical Society of Virginia, will put on an all day medical and surgical clinic. Clinics will be held at the Norfolk Protestant Hospital in the morning, beginning at 10:00 o'clock, and at St. Vincent's Hospital during the afternoon, beginning at 2:00 o'clock. In the evening an address will be delivered by invited guest, Dr. Chevalier Jackson, of Philadelphia.

Luncheon will be served at 1:00 P. M. by the Norfolk Protestant Hospital, and a buffet supper will be served at 6:00 P. M., the place to be announced later.

The medical profession is cordially invited to attend. A detailed program will be announced later.

The Committee on Arrangements consists of Dr. C. L. Harrell, chairman, and Drs. B. E. Harrell, R. D. Glasser, and J. H. Culpepper.

The Committee on Program consists of Drs. J. L. Rawls, W. B. Martin, F. C. Rinker and W. P. McDowell, and a detailed program will be mailed to each physician in Eastern Virginia about March 15th.

It is confidently believed that this clinic will be exceptionally interesting and instructive, and it is hoped that there will be a large at-

tendance from all sections along the seaboard, including North Carolina.

—*On April 22nd*, beginning at 2:00 P. M., the Richmond Academy of Medicine, composed of the counties of Henrico and Chesterfield, in cooperation with the Department of Clinical Education, will hold a Post-Graduate clinic for doctors in Virginia during the afternoon and evening. Dr. W. H. Higgins is president and Dr. R. Finley Gayle chairman of the committee on program.

Several short clinics at which the cases will be demonstrated at the Memorial Hospital and St. Philip's Hospital, will be shown in the afternoon. There will also be practical demonstrations of the newer methods of diagnosis, such as the actual use of the Electro-Cardiogram and the Basal Metabolism determination.

In the evening, the guest speakers will be Dr. O. H. Perry Pepper, Professor of Medicine at the University of Pennsylvania and Dr. H. L. Amoss, who is the new Professor of Medicine at Duke University. The program more in detail will be given later, but the above announcement will be a sufficient guarantee of the clinical and educational opportunities that will be offered, and to which all practitioners are cordially invited. As this is the first time that the Richmond Academy of Medicine has offered such a clinic program, it is hoped that there will be a large attendance.

—*On April 25th*, the Clinch Valley Medical Society, composed of representatives from seven county societies in the extreme Southwestern part of the State, will meet at Richlands in the Mattie Williams Hospital. Dr. W. R. Williams, who has charge of this hospital, is chairman of the local committee of arrangements, and Dr. C. B. Bowyer has charge of the program. At his request, this department will aid him in securing lecturers and clinicians on medicine, surgery, obstetrics, and children for this meeting, and a fuller announcement will be made in this section next month.

Former meetings of this society have been of unusual interest, and have furnished most excellent clinical educational programs.

—*During the first week in May*, the Graduate Clinics at the University of Virginia will be held. The detailed program of this course will be published later, and also that of the Medical College of Virginia, which will be held early next Fall.

These Post-Graduate courses at the Medical Colleges will be more extended, and in their development it is hoped that they may be so correlated that physicians in the State may have the opportunity of attending both, and pursuing more specialized lines of study and clinical work. It is believed that the profession of the State will appreciate the opportunities thus offered, and will begin to make their arrangements to attend them.

—*At an early date in the Spring*, Piedmont Sanatorium at Burkeville is scheduled to hold a T. B. clinic with personal and instrumental demonstrations.

Former clinical meetings at this Sanatorium have been of great benefit and interest to the colored physicians of the State.

—The Southwestern Virginia Medical Society, including the counties of Bland, Carroll, Giles, Grayson, Montgomery, Pulaski, Smyth, Washington and Wythe, has completed the program for its March meeting before the publication of this issue, but the full program of its Fall meeting will be published when ready.

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#### NORFOLK COUNTY MEDICAL SOCIETY.

March 3rd. Business Meeting.

March 10th. Dr. B. E. Harrell—Contracted Vesicle Neck.

March 17th. Dr. Warren Vaughan—Protein Sensitization.

March 24th. Dr. F. D. Wilson—Progress of Pediatrics in 1929.

March 31st. Special Meeting. Morning—Clinics at Norfolk Protestant Hospital. Afternoon Clinics at St. Vincent's Hospital. Evening—Address—Dr. Chevalier Jackson.

Any member of the Medical Society of Virginia will always be welcome at the meetings of the Norfolk County Medical Society.

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#### OTHER COUNTY SOCIETIES

A considerable number of other local county societies are making arrangements to hold clinical meetings this Spring and Summer, and as soon as these are perfected, announcement will be made.

To all participating in these and future clinical meetings, this Department wishes to offer its services in any reasonable way desired, such as assisting in furnishing speakers, making up programs, advertising the meetings, etc.



It is in no sense the purpose of this Department to dictate, but to cooperate.

#### ADVICE TO MEMBERS

Dr. J. W. Preston, Chairman of the Committee on Medical Education and Hospitals of the State Society, in writing recently to a Councilor, urges individual work on the part of each member as follows:

"The purpose of this letter is in my capacity as Chairman of the Committee on Medical Education and Hospitals to offer you any assistance I may be able to give in connection with your plans in our district. I am quite sure that Dr. Hodges has written you, and I want you to know that I am thoroughly interested, and hope that I may in some way be of help.

"Dr. Hodges is laying a broad foundation, and I feel as I am sure you do, that quite a responsibility rests upon all of us, and especially upon those who hold official positions of any character in the organization to keep our shoulders to the wheel, and help make a success of what offers more in the way of raising the standard of medicine in the State than any movement of recent years."

#### INFORMATION

All members of the State Society are requested to write for any information desired on any subject relative to these Extension Courses in Graduate Medical Education, either to the Acting Executive Secretary, Mr. George W. Eutsler, P. O. Box 707, University, Va., or to the Chairman of the Department of Clinical Education, 5 East Franklin Street, Richmond, Va.

## The Truth About Medicine

In addition to the articles enumerated in our letter of December 28, the following have been accepted:

Abbott Laboratories

Butesin Picrate Eye Ointment.

Lakeside Laboratories, Inc.

Ampoules Dextrose (d-Glucose), 10 Gm., 20 c.c.

Ampoule No. 51, Sodium Cacodylate 0.243 Gm. (3¼ grains), 5 c.c.

H. K. Mulford Co.

Pneumococcus Antibody Solution, Types I, II and III Combined—Mulford, four 50 c.c. double-ended vials.

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1929, p. 481):  
Davies, Rose & Co., Ltd.

Pil. Digitalis (Davies, Rose).

Kings County Packing Co.

Sac-A-Rin Brand California Bartlett Pears.

Sac-A-Rin Brand California Tidbits Hawaiian Pine-apple.

Sac-A-Rin Brand California Royal Anne Cherries.

Lakeside Laboratories, Inc.

Ampoule No. 64, Calcium Chloride 10%.

#### NEW AND NON-OFFICIAL REMEDIES

Diphtheria Toxoid-National.—A diphtheria toxoid (New and Non-official Remedies, 1929, p. 368), prepared from seven-day cultures of the diphtheria bacillus that yield a toxin having an L+ dose of not less than 0.25 c.c. The toxin is treated with formaldehyde. The finished product is tested for antigenic potency. The product is marketed in packages of three vials (one immunization treatment); in packages of one vial (fifteen immunization treatments); in packages of forty-five vials (fifteen immunization treatments). The National Drug Co., Philadelphia.

Scarlet Fever Streptococcus Antitoxin—Cutter.—A scarlet fever streptococcus antitoxin (New and Non-official Remedies, 1929, p. 350), prepared by the method of Drs. Dick, by license of the Scarlet Fever Committee, Inc. It is marketed in packages of one syringe containing 2,000 units, and in packages of one syringe containing 6,000 units. Cutter Laboratory, Berkeley, Calif.

Typho-Bacterin Mixed (Triple Vaccine TAB).—This product (New and Non-official Remedies, 1929, p. 380), is also marketed in packages of thirty 1 c.c. vials, being ten immunizations of three doses each. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 4, 1930, p. 31).

Ampules Sodium Cacodylate—Mulford, ¼ grain, 1 c.c.—Each ampule contains sodium cacodylate (New and Non-official Remedies, 1929, p. 73), 0.05 Gm. (¾ grain), in 1 c.c. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

Ampules Sodium Cacodylate—Mulford, 3 grains, 1 c.c.—Each ampule contains sodium cacodylate (New and Non-official Remedies, 1929, p. 73), 0.2 Gm. (3 grains) in 1 c.c. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

Ampules Sodium Cacodylate—Mulford, 5 grains, 1 c.c.—Each ampule contains sodium cacodylate (New and Non-official Remedies, 1929, p. 73), 0.32 Gm. (5 grains) in 1 c.c. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

Erysipelas Streptococcus Antitoxin (Concentrated)—Mulford.—This product (New and Non-official Remedies, 1929, p. 349), is also marketed in packages of one 10 c.c. syringe containing 500,000 protective units. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 11, 1930, p. 105).

Curdolac Casein—Bran Improved Flour.—A flour prepared from casein, carbohydrate-free bran, and soya bean, to which leavening and flavoring have been added. It may be used for the preparation of muffins or bread having a comparatively low carbohydrate content and low food value, with bulk. Curdolac Food Co., Waukesha, Wis.

Curdolac Soya—Bran Flour.—A flour prepared from soya bean and a starch-free bran with a leavening mixture. It may be used for the preparation of bread and muffins for use in diets in which a comparatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

Curdolac Breakfast Cereal.—A medicinal food pre-

pared from soya beans blended with wheat products, including starch-free bran. It may be used as a hot food in diets in which a comparatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, W's.

**Curdolac Casein Compound.**—A flour prepared from casein, vegetable fiber and a leavening mixture to which sodium chloride and gluside are added. It may be used for the preparation of carbohydrate-free bread, muffins, cake, etc., for use in diets in which a relatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

**Curdolac Soya Flour.**—A flour prepared from the soya bean. It may be used for the preparation of foods in diets in which a relatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

**Curdolac Wheat—Soya Flour.**—A flour prepared from soya beans, starch-free bran and a small proportion of wheat, with leavening and flavoring. It may be used for the preparation of muffins, cakes, waffles, etc., of well balanced food value for use in restricted diets. Curdolac Foods Co., Waukesha, Wis.

**Curdolac Soya-Cereal Johnny Cake Flour.**—A flour prepared from soya beans and cereal products, to which leavening and flavoring have been added. It may be used in the preparation of muffins, cakes, waffles, etc., for use in diets relatively low in carbohydrate, designed for those who cannot use products made with bran. Curdolac Food Co., Waukesha, Wis.

**Curdolac Soya-Bran Breakfast Food.**—A medicinal food prepared from soya beans and a starch-free bran, to which has been added leavening, flavoring, gluside, and oils without food value. It may be used in diets in which a low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis. (Jour. A. M. A., January 18, 1930, p. 185).

#### PROPAGANDA FOR REFORM

**Crystalline Pepsin.**—Within a comparatively few months successive announcements of the isolation of crystalline insulin, crystalline tuberculin, crystalline urease and crystalline pepsin have followed one another. This crystalline pepsin possesses all the enzymatic properties: it hydrolyzes gelatin, casein, egg albumin and edestin in acid solution and is rapidly inactivated by alkali or heat. It crystallizes in small prisms. The highest peptic activity thus far secured is about 1:20,000 U. S. P. (Jour. A. M. A., July 27, 1929, p. 285).

**Effects of Continuous Use of Allonal and Amytal.**—“Allonal,” according to a report of the Council on Pharmacy and Chemistry (Jour. A. M. A., June 12, 1926, p. 1853,) is a preparation containing a combination of allylisopropylbarbituric acid and amidopyrine mixed with free allylisopropylbarbituric acid and an excess of amidopyrine. “Amytal” is stated to be iso-amyl-ethyl barbituric acid. The effects from the continuous use of either of these drugs in doses of two tablets daily cannot be stated accurately in a few words because the barbituric acid derivatives give rise to an extraordinary variety of symptoms under different conditions. It is possible that no ill effects would follow from such daily doses in a healthy adult in whom sleeplessness resulted solely from unusual cerebral activity, if the use were not too prolonged. At the other extreme, such doses taken continuously over a long period by an invalid suffering from a serious condition in which various other drugs were taken might lead eventually to the typical symptoms of barbital poisoning, with pneu-

monia and death. Neither Allonal nor Amytal stands accepted by the Council on Pharmacy and Chemistry. (Jour. A. M. A., May 25, 1929, p. 1783.)

**Bacteriophage as a Therapeutic Agency.**—The bacteriophage has been slow to gain acceptance as a possible agent in the warfare against infection. Recent investigations show the many difficulties connected with the successful use of bacteriophage and also the advantages which they have over other agents. While bacteriophage preparations give promise of eventually becoming valuable additions to the physician's armamentarium, it should be remembered that the whole subject is still in the experimental stage. When vaccine therapy was new and in the ascendancy, manufacturers offered specific vaccines for almost every human ailment and “mixed vaccines” of startling complexity. The Council on Pharmacy and Chemistry not only rejected most vaccine mixtures but has during recent years been obliged to omit a considerable number of simple vaccines because the results obtained with them did not measure up to the evidence which investigators supplied in the height of enthusiasm. Manufacturers are already marketing bacteriophage preparations, simple and mixed. Warrant for the use of such mixtures has not so far become evident and the Council on Pharmacy and Chemistry has postponed the acceptance of simple preparations to await further evidence in favor of their usefulness. (Jour. A. M. A., July 13, 1929, p. 121).

**More Deaths from Thallium.**—Three more deaths from thallium poisoning are reported. Three boys, aged ten, eleven and twelve years, respectively, received successive doses of thallium acetate for ringworm. Although influenza had left one of them apathetic and the other two were mentally dull since birth and all three were undernourished the dose of 0.008 Gm. per Kg. of body weight was either given or its administration begun. The effort to give the calculated amount in divided doses caused death as have other similar attempts. Only one dose should be given and for children infirm in any way, this should be less than the usual amount. (Jour. A. M. A., July 13, 1929, p. 122).

**Pharmaceutical Preparations of Ephedra Not Acceptable For N. N. R.**—The Council on Pharmacy and Chemistry points out that during recent years much attention has been given to the alkaloid ephedrine and that the free base, ephedrine, and two salts, ephedrine hydrochloride and ephedrine sulphate, have been admitted to New and Nonofficial Remedies. Further, that the alkaloid ephedrine is one of the alkaloids contained in the drug ephedra (*Ephedra equisetina*, *ma huang*), which contains also an indefinite and variable mixture of bases related to ephedrine but differing quantitatively and possibly qualitatively in their actions. A chemical assay of pharmaceutical preparations of ephedra, has, therefore, no value as a measure of their therapeutic potency, having no bearing on therapeutic activity. The Council holds the use of unstandardized preparations of a potent drug to be a step backward, and is distinctly undesirable when standardized preparations (in this case the isolated alkaloid ephedrine and its salts) are practically available. The Council therefore decided that pharmaceutical preparations of ephedra must be considered unacceptable until their therapeutic value in comparison to ephedrine has been established. (Jour. A. M. A., June 22, 1929, p. 2101.)

**Poisoning From Methyl Chloride Used in Domestic Refrigerators.**—At the 1929 annual session of the American Medical Association the House of Dele-



gates, recognizing the dangers of toxic gases used in industry and in the home, asked the Board of Trustees to appoint a committee to look into the situation and to advise the medical profession and the public for the good of the public health. In the meantime additional deaths from the use of methyl chloride in mechanical refrigeration have occurred in Chicago as determined by a special coroner's jury, which has recommended the discontinuance of the use of methyl chloride as rapidly as possible, the temporary use of warning gases with methyl chloride until substitution of some less hazardous gas shall be made, and a definite warning by manufacturers to users of such apparatus as to the hazards involved. (Jour. A. M. A., July 27, 1929, p. 288).

**Blood Sugar Testing Outfits.**—The various blood sugar testing outfits on the market are, for the most part, satisfactory for clinical work, especially when one wishes to follow the blood sugar values from time to time. None of these instruments are as reliable as the special methods advanced in the literature, but most of them are based on principles of these tests, so that the difference is largely one of degree of accuracy of the results. If one uses the same instrument or method on different specimens of the patient's blood, whatever error there may be in the outfit or method employed is introduced at each testing, so that the results obtained are comparable. It is hard to see how the Sheftel sugar test can yield anything more than a rough estimate of the sugar contents. The claim of a percentage of error of less than 0.1 per cent is so ridiculous as to throw discredit on the originators. (Jour. A. M. A., August 3, 1929, p. 403).

**Pituitary Liquid (Surgical) Armour, Pituglandol—Roche, Pituitary Extract—Lederle 20 Units, Pituitary Extract—Lilly (Surgical), Pituitary Extract Surgical—Merrell, Solution Pituitary Extract Surgical—Mulford, Pituitrin "S" (Surgical), and Pituitary Solution Surgical—Wilson Omitted from N. N. R.**—The Council on Pharmacy and Chemistry reports that a reliable method of standardization for pituitary was made official in the tenth revision of the U. S. Pharmacopeia. While up to that time the Council had recognized solutions of pituitary of various strengths, when an exact standard had been made available, the Council decided that it was not in the interest of rational therapy to market strengths different from that of the pharmacopeial product. The Council therefore has omitted all pituitary solutions differing from the pharmacopeial strength from New and Non-official Remedies, 1929. (Jour. A. M. A., August 17, 1929, p. 524).

**The Action of Digitalis in Heart Failure.**—Clinicians have generally accepted the pharmacologic evidence that digitalis causes a more vigorous and larger ventricular contraction. But it is difficult to accept the view that a muscle such as the heart, which cannot rest after being overstimulated, is improved by being forced to beat harder. It has now been shown that the efficiency of the heart, or its capacity for doing a fixed amount of work with least oxygen consumption, varies inversely with its diastolic volume. It was shown further that digitalis causes the heart to decrease its diastolic volume while carrying a constant load. Thus, digitalis reduces the energy requirement of the heart or permits it to do more work with the same expenditure of energy. (Jour. A. M. A., August 17, 1929, p. 548).

**Use of Combination of Barbitol and Amidopyrine.**—There seems to be no reason to doubt that a mixture composed of one of the analgesic drugs, such as amidopyrine, acetylsalicylic acid, acetanilid or

acetphenetidin, and a hypnotic drug of the barbitol type is more effective in relieving pain than is either of the components alone. This type of mixture was popularized apparently, if not originated, by von Noorden, who reported that a mixture containing 0.3 Gm. of barbitol, 0.25 Gm. of acetphenetidin and from 0.0025 to 0.03 Gm. of codeine was equal in effect to 0.6 Gm. of barbitol without the side action of the latter, but he did not present satisfactory evidence in support of that statement. At present there is a large number of proprietary remedies of this general type on the market. There has been apparently no satisfactory clinical comparison of the pain-relieving power of any of these preparations with that of the simple analgesics. A mixture of barbitol and amidopyrine is probably as useful as any of the expensive proprietary preparations of this type. The action of the hypnotic may outlast that of the analgesic; hence they may be used separately, the analgesic being repeated more frequently than the hypnotic. (Jour. A. M. A., August 31, 1929, p. 713).

**Acquired Pollen Hypersensitiveness.**—In order to account for acquired pollen hypersensitiveness, clinicians usually assume that at some previous time the patient has inhaled, has swallowed or has otherwise been inoculated with a specific pollen. According to this hypothetical etiology the patient should be equally hypersensitive to the individual proteins of this pollen, assuming, of course, that these proteins are all equally antigenic. That such patients are not thus equally hypersensitive appears from recent work. This work throws doubt on the common assumption that acquired pollen hypersensitiveness is due to previous exposure to a specific pollen, and equal doubt therefore on the rationale of current methods of antiallergic therapy. (Jour. A. M. A., August 31, 1929, p. 697).

**Ergot Preparations Omitted From N. N. R.: An Explanation.**—In the Journal of the American Medical Association, May 4, 1929, there was published a report by the Council on Pharmacy and Chemistry on certain preparations of ergot which were intended for hypodermic administration. This report stated that the preparations had been omitted from New and Nonofficial Remedies because they were essentially watery extracts of ergot and therefore contained little or none of the specific alkaloids of the drug; because, with one exception they were not assayed by any method which showed their alkaloid content; and that an examination had shown that they were practically devoid of the specific alkaloids. Inasmuch as there seems to be in certain quarters some misunderstanding of the action, the Council on Pharmacy and Chemistry points out that the reasons for omitting these preparations are those stated in its report, and the Council emphasizes that no evidence was found to indicate that in any case there was adulteration, or that improper ergot had been used in the manufacture of these products. Nor was any preparation found to be unduly toxic. (Jour. A. M. A., September 7, 1929, p. 769.)

## Book Announcements

**Pawnee Music.** By FRANCES DENSMORE. Smithsonian Institution. Bureau of American Ethnology. Bulletin 93. United States Government Printing Office. Washington. 1929. Octavo of 129—xviii pages. Illustrated. For sale by the Superintendent of Documents, Washington, D. C. Price 90 cents.

# Virginia Medical Monthly

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## Editorial

### Prophylactic Measures in Measles.

Measles needs no advocate to emphasize its dangers. While it is a common disease, rarely is it an infection that may be safely treated with indifference or neglect without running serious pathological risks. Many serious complications have risen, irremediable and dangerous to life and happiness, following measles. While it is true that children, in most instances, bear this infection well, among the one-year-olds the mortality is high, and even to the four-year-olds, pneumonias are not infrequent. In addition, following upon the train of measles, latent tuberculosis and other constitutional affections may appear. Measures of prevention of measles, that promise reasonable success, should, therefore, receive the close attention of pediatricians and practitioners. Silverman\* has recently attempted a process of immunization from convalescent serum in community epidemics. Blood pools were formed by Siegel and Ermann. In March-April, 1928, an epidemic among school children in Philadelphia offered occasion for an effort along this line. Fifty-five susceptible children in an institution, all of whom had been exposed to measles, were inoculated with pooled blood (Wassermann negative) of adults, and none of them developed measles. It is felt that the blood serum of adults who have had the disease presumably contains anti-bodies and that pooled blood of such adults, injected under proper conditions and doses, particularly in an institution for children, may offer a means of prevention.

### Secondary Anemia.

Secondary anemia, without gross signs of hemorrhage, frequently presents puzzling clinical conditions. Practitioners may wonder over such cases, thinking strongly in terms of pernicious anemia, probably when investigation shows a lack of cardinal criteria for that malady. Secondary anemia following upon known hemorrhage offers no such question. Secondary anemia may stealthily advance to prominence in a clinical picture before discovery is made of some underlying bleeding point. So, with all, it becomes a matter of clinical interest to read the short publication of Douglas and Tannenbaum\* on this subject.

They observed, very properly, that there are three mechanisms concerned in the production of anemia, namely: (1) hemorrhage; (2) diminished production of blood or impaired delivery of erythrocytes from hematopoietic tissue into the circulation; and (3) destruction of blood. In making their study, they relied on the fact that the reticulated cell count furnishes the most accurate index of bone-marrow function, and that the icteric index gives the best measures of the breakdown of hemoglobin, except in hepatic disease or obstruction of biliary passages. They studied three groups of cases: (1) secondary anemia with no evidence of hemorrhage or obvious destruction of blood; (2) secondary anemia with hemorrhage; and (3) non-anemic including normal controls.

It was found by these workers that cases of anemia may be grouped etiologically if the reticulocyte count and the icteric index are known and that they may be classified as due to (1) hemorrhage, (2) diminished production of blood or faulty delivery of red cells into the circulating blood, (3) destruction of blood, or (4) combinations of such factors. In twenty cases of secondary anemia without hemorrhage, the reticulocyte counts were normal and the icteric indices were normal or blood normal.

In those common forms of secondary anemia, as found in chronic nephritis, abscess of lungs, or acute rheumatic fever, the condition results from diminished production of blood. Their study included such conditions as syphilitic aortitis, tonsillitis, grippe, infectious arthritis, gonorrheal arthritis, chronic nephritis, acute rheumatic fever, abscess of the lung, chronic pulmonary tuberculosis, lobar pneumonia, chronic myocarditis, and chorea.

\*A. J. M. Sc., February, 1930, page 192.

\*Archives Internal Medicine, Vol. 45, No. 2, page 248.



## SECONDARY ANEMIA IN PREGNANCY AND PUERPERIUM.

Anemia complicating pregnancy has been studied for much of a century. A historical review covers publications of literature since 1836. One should note with interest the historical consideration of this subject, because hemoglobin estimations and erythrocyte counts in pregnant women have long been of interest. Practitioners, attending the pregnant woman, may find in the publication of Bland\* and others, ready reference to the present day conception of the complication, for they report a study of three hundred patients. It is interesting to note that the factors at work that produce the anemia of pregnancy are not known.

Some have claimed that the condition is not pathologic. These workers state that of 200 ward patients with red cell counts below 3.5 million, there were one hundred. Of 100 private patients, 26 per cent gave counts below 3.5 million at term; and 42 per cent of the total 300 gravid women showed counts below 3.5 million, regardless of the time of examination. It was also found that 82 per cent of the 200 ward patients and 62 per cent of the 100 private patients gave hemoglobin determinations at 75 per cent or below. The possible etiologic factors offered included "ill-health," foci of infection, toxemia, and syphilis, but no confirmation was made of this. It was remarkable to have impressed with what rapidity a large number of the anemic cases recovered normal blood values within a few days after delivery. The withdrawal of iron from maternal corpuscles by the fetus, the existing hydremia of pregnancy, and pre-existing chlorosis, may serve as a means for thought in this connection. The removal of these factors seemed to occasion a return to normal within a short time.

## CHRONIC IDIOPATHIC SECONDARY ANEMIA.

After considering secondary anemia in its two main groups, (1) those cases due to hemorrhage and (2) those cases due to some organic lesion, there remains a group of cases, idiopathic in type. Naturally, this type, being of unknown origin, offers greater difficulties in treatment. In view of this situation, Watkins† has studied this type of secondary anemia.

In the outset, attention is drawn to characteristic features of regeneration and degeneration in idiopathic secondary anemia. Regene-

ration may be itemized by (1) anisocytosis, variation in the size of erythrocytes, with a liberal number of macrocytes; (2) polychromatophilia; (3) reticulocytes; (4) normoblasts, nucleated erythrocytes of the definite series, and (5) multiple Howell-Jolly bodies. Degeneration may be summarized by (1) anisocytosis, variation in the size of erythrocytes, with a high proportion of microcytes; (2) hypochromasia; (3) anochromasia, piling up of hemoglobin around the peripheral portion of the cell. Besides this, there is a tendency, says Watkins, toward a shift to the right of the myeloid leukocytes and other features of hemoglobin interest.

Watkins assort four general types, according to the morphologic blood picture. The first, he says, occurs in young persons and usually in females. Hemoglobin is proportionally reduced 55 per cent, erythrocytes averaging about 4 million, and a color index of 0.5 to 0.6. Reticulocytes are normal or slightly increased. Morphologically, anochromasia, moderate anisocytosis, slight hypochromasia and slight polychromatophilia, are observed. He calls this the chlorotic type because of its similarity to the blood picture of chlorosis.

The second type is marked by a proportionate reduction in hemoglobin and erythrocyte count, and color index is approximately 1. A decrease of erythrocytes is noted; they may be absent entirely; besides the leucocyte count is slightly reduced. Normochromasia and anochromasia, moderate anisocytosis, with macrocytosis or polychromatophilia are observed in this type. But, morphology of the granular leukocytes, says Watkins, is most characteristic of this type; the neutrophils are slightly decreased in size; the majority of the cells have a nucleus of four or five lobes. Treatment of this type is best conducted by efforts directed toward stimulation of activity of bone marrow, such as transfusion, intramuscular injections of whole blood, and use of an experimental extract of bone marrow.

The third type is found in women of 30 to 50 years. Insidious in onset, years may mark this type before the patient comes in for treatment. In such cases there may be associated achlorhydria, suggestive of pernicious anemia, yet these cases are not true pernicious anemia. In this type of chronic secondary anemia, says Watkins, the proportion of hemoglobin is reduced, ranging from 45 to 50 per cent and the

\*A. J. M. Sc., January, 1930, page 48.

†Chas. H. Watkins, J. A. M. A., November 2, 1929, page 1365.

erythrocyte count remains high; the reticulocytes are increased and the leukocytes are normal in count. Morphologically, hypochromasia of erythrocytes, slight anchromasia and slight polychromatophilia mark this type. Bone marrow in this type appears normal and there is no dysfunction in synthesis of hemoglobin, apparently. To meet this, it was thought that the fetal liver of calves, obtained at the time of the greatest hematopoietic function of the liver, might stimulate synthesis in the body of hemoglobin. So three hundred grams of raw fetal liver was given and there was a marked response in nearly all cases.

The fourth type is found in a young patient whose parents or near relatives have pernicious anemia. Erythrocytes are reduced and the hemoglobin is reduced so the color index is below 1.

## News Notes

### Invited Guests for Meeting of State Society.

Our president, Dr. Charles R. Grandy, Norfolk, Va., announces that he will have Dr. William S. Thayer, of Baltimore, and Dr. David Lyman, of New Haven, Conn., as his invited guests for the Norfolk meeting of the Medical Society of Virginia. We feel we are fortunate in Dr. Grandy's selection and in the acceptance of the invitation by these two men and hope we shall have a large attendance.

As announced in the February MONTHLY, the Council has set October 21, 22 and 23 as dates for this meeting.

### The Tri-State Medical Association of the Carolinas and Virginia

Had a splendid meeting in Charleston, S. C., in February, under the presidency of Dr. Cyrus Thompson, of Jacksonville, N. C. There was an attendance of about four hundred doctors. Richmond, Va., was selected as the 1931 place of meeting and Dr. William B. Lyles, Spartanburg, S. C., was elected president. Other officers for the ensuing year are: Vice-presidents, Dr. C. J. Andrews, Norfolk, Va., Dr. W. E. Warren, Williamston, N. C., and Dr. M. H. Wyman, Columbia, S. C.; secretary-treasurer, Dr. J. M. Northington (re-elected), Charlotte, N. C. The newly elected councilors are: Drs. DeWitt Kluttz, Washington, N. C., J. H. Cannon, Charleston, S. C., and H. J. Langston, Danville, Va. The councilors holding over are:

Drs. J. Bolling Jones, Petersburg, Va., D. A. Garrison, Gastonia, N. C., W. P. Timmerman, Batesburg, S. C., Dean B. Cole, Richmond, Va., C. C. Orr, Asheville, N. C., and R. E. Seibels, Columbia, S. C.

It is planned to have the Richmond meeting feature clinico-pathological conferences and clinics even more than the last two meetings.

### The American College of Physicians.

The fourteenth annual clinical session of the College, at Minneapolis, Minn., February 10-15, was one of its best meetings, both as to scientific program and clinics. The attendance passed the 1,350 mark. Those from Virginia were: Dr. John R. Hamilton, Nassawadox; Dr. James W. Hunter, Jr., Norfolk; Drs. Dean B. Cole, W. Randolph Graham and J. M. Hutcheson, Richmond; and Dr. J. W. Preston, Roanoke.

Virginia internists elected to fellowship in the College this year are: Drs. Dean B. Cole, Garnett Nelson, and Warren T. Vaughan, Richmond; and Drs. James T. Hunter, Jr., and C. Lydon Harrell, of Norfolk; while Dr. John R. Hamilton, Nassawadox, and Dr. W. Randolph Graham, Richmond, were elected to associateship.

Baltimore, Md., was selected as the 1931 place of meeting, the time to be in March or early April. Dr. Sydney R. Miller, president, will act as chairman of the general scientific program, and Dr. Maurice C. Pincoffs will have charge of the clinical program and act as general chairman of the session.

The following officers were elected for the ensuing year: President, Dr. Sydney R. Miller, Baltimore; president-elect, Dr. S. Marx White, Minneapolis; vice-presidents, Drs. A. S. Warthin, Ann Arbor, Mich., Francis M. Pottenger, Monrovia, Calif., and John A. Lichty, Clifton Springs, N. Y.; secretary-general, Dr. George M. Piersol, Philadelphia; treasurer, Dr. Clement R. Jones, Pittsburgh; and executive secretary, Mr. Edward R. Loveland, Philadelphia.

One-third of the members of the board of governors (one from a State) are elected each year, the terms being for three years. These are considered the key men for each state, and serve in a supervisory manner for membership scrutiny and other College matters. The following were elected this year for Virginia and nearby states: Dr. J. Morrison Hutcheson, Richmond, Va.; Dr. Charles H. Cocke, Ashe-



ville, N. C.; Dr. Robert Wilson, Jr., Charleston, S. C.; and Dr. John N. Simpson, Morgantown, W. Va.

### **Grant Research to Medical College of Virginia.**

The Committee on Scientific Research of the American Medical Association has made a grant to the Medical College of Virginia for the study of lung involvement in the human ascariasis. This work will be directed by Dr. F. J. Wampler, professor of preventive medicine and Dr. Lee E. Sutton, assistant professor of pediatrics.

### **Dr. Caspar L. Woodbridge,**

Montgomery, W. Va., was recently awarded the Laird Memorial cup of the Fayette County (W. Va.) Medical Society, for having read the most original paper before that society during the past year. The title of his paper was "Blood Transfusion in the Septicemias." Dr. Woodbridge, who served for several years as a medical missionary in China, was located for a time at Pulaski, Va., after his return to this country.

The cup was presented the Fayette County Medical Society by Dr. William R. Laird, Jr., of Montgomery, an alumnus of the Medical College of Virginia, in memory of his uncle, Dr. J. M. Laird, who was the first president of that society.

### **Married.**

Dr. Lee Edwards Sutton, Richmond, and Miss Ruth Rogan McClellan, of New York City, formerly of Bristol, Tenn., February 8.

### **New Appointments to Faculty of New York Polyclinic Medical School and Hospital.**

The following have been appointed to the faculty of the New York Polyclinic Medical School and Hospital: Dr. Shirley W. Wynne, Health Commissioner of New York City, as professor of preventive medicine; Dr. Gaylord W. Graves and Dr. Alexander T. Martin as professors of pediatrics.

### **The International Society for Crippled Children**

Is meeting in Toronto, Canada, March 17-19, with convention headquarters at the New York Hotel. Arrangements have been made for the delegates to visit public institutions and hospitals during the period of the Toronto meeting. It is also planned to hold several luncheon meetings in conjunction with the Toronto Service Club. Mr. Harry H. Howett, Elyria, Ohio, is executive secretary of this Society.

### **Report on Medicinal Tablets and Ampules Issued by U. S. Department of Agriculture.**

Suggested tolerances on medicinal tablets and ampules, with methods of analysis, have been put in printed form by the U. S. Department of Agriculture at the instance of manufacturing associations.

The sixth and seventh reports of the committee representing The American Drug Manufacturers Association and The American Pharmaceutical Manufacturers Association, contains these proposed tolerances, for the information and consideration of the Department of Agriculture and the drug trade.

The medicinal tablets involved are: Caffeine citrated, bismuth subcarbonate, bismuth subgallate, bismuth subnitrate, and mercuric iodide; the ampules are of: Caffeine sodium benzoate, camphor in oil, pituitary extract surgical, silver nitrate, sodium cacodylate, sodium iodide, and sodium salicylate. Amendments to previous reports on calomel tablets and calomel and soda tablets are given in the report.

Copies of the report may be obtained from the Food, Drug, and Insecticide Administration, U. S. Department of Agriculture, Washington, D. C.

### **Pan-American Child Congress in Lima, Peru.**

The Sixth Pan-American Child Congress will be held in Lima, Peru, July 4 to 11, 1930. Medicine, surgery, hygiene, social welfare, legislation and education will be the six general topics for discussion, the program for each being under the direction of a special section of the congress. For information address the Secretario General, VI Congreso Pan Americana del Nino, Apartado 987, Lima, Peru.

### **Dr. S. E. Gunn,**

Hopewell, Va., left the middle of February for Rochester, Minn., to spend several weeks at the Mayo Clinic.

### **Dr. W. H. F. Miller,**

Clifton Forge, Va., was elected senior warden of St. Andrew's Episcopal Church in that place, at a meeting of the vestry last month.

### **Dr. William J. Mayo to Give Lecture at Medical College of Virginia.**

Dr. William J. Mayo, Rochester, Minn., has agreed to give the first lecture under the McGuire lectureship, at the Medical College of Virginia, Richmond. This lectureship was recently established by the board of visitors of the College, in recognition of the able service

of Dr. Stuart McGuire as president of the College, from which position he retired July 1, 1925. The lecture by Dr. Mayo will be given next Fall, at a date to be announced later. These lectures will be open to the general public and it is planned that they shall be of general interest rather than highly technical. Dr. Mayo is so widely known, that he needs no introduction to our readers.

Dr. A. L. Gray, Richmond, is chairman of the faculty committee appointed to arrange for inaugurating the McGuire lectureship.

#### **Centennial Meeting of the Tennessee State Medical Association.**

The Tennessee State Medical Association will celebrate the one hundredth anniversary of its organization, in Nashville, April 8th, 9th, and 10th.

Dr. H. H. Shoulders, secretary-editor, takes this means of extending an invitation to all members of the Medical Society of Virginia to attend. We hope many of our members may avail themselves of this opportunity.

At the meeting of our Council in February, Dr. Charles R. Grandy, president, was appointed as the official representative from the Medical Society of Virginia.

#### **Visiting in Florida.**

Drs. L. A. Robertson and W. O. Lee, of Danville, Va., spent the latter part of February on a fishing trip in Florida.

#### **National Child Health Day 1930.**

Each successive May Day centers its work upon one particular thing vital to the health and well-being of childhood. This year it addresses itself to the fathers and mothers of the United States, as upon them depends the success of all efforts to ensure a sound mind in a sound body to every child. Therefore, the special keynote of 1930 is "Parent Cooperation in Community Child Health and Protection." The state's official health work will be effective for children in proportion to the intelligent cooperation of the parents.

May Day—National Child Health Day 1930—asks of parents and health workers intelligent cooperation in the nation's child health program. The President can call a White House Conference on Child Health and Protection; others can say, "Let us consecrate May Day to the children of the United States." But only parents by their cooperation can make the results of the Conference practical in the life

of the child, and can translate the ideal of May Day into child health, child happiness, and child success.

#### **Dr. Charles H. Peterson,**

Until recently an instructor in roentgenology at the University of Virginia, Department of Medicine, has moved to Roanoke, Va., and become roentgenologist at Jefferson Hospital, that city.

#### **Dr. John A. Tyree,**

Who was a patient at Stuart Circle Hospital, Richmond, in January, remains critically ill at his home in Danville, Va.

#### **U. S. Civil Service Examinations.**

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for: Trained nurse and trained nurse (psychiatric), applications to be on file with the Commission in Washington, not later than April 8; and for social worker (psychiatric) and junior social worker, applications to be on file with the Commission not later than June 30.

#### **Dr. Carroll G. Bennett,**

Recently of Johnston-Willis Hospital, Richmond, Va., is now associated with Dr. S. E. Massey, at Amonate, Tazewell County, Va. Dr. Bennett is an alumnus of the Medical College of Virginia in the class of '28.

#### **New Building of Jefferson Medical College Dedicated.**

On February 22, were held the ceremonies incident to the dedication of the new building of the Jefferson Medical College, Philadelphia, at which time the various departments of the College were open to inspection. In the afternoon, alumni clinics were held in the Samuel Gustine Thompson Annex of Jefferson Hospital. The mid-winter smoker of the Alumni Association took place that evening.

#### **Dr. L. S. Early,**

Petersburg, Va., was elected national representative of the Robert E. Lee Council, Boy Scouts of America, of that city, at a recent meeting.

#### **American Public Health Association.**

Because steers and bucking bronchos come to one's mind immediately when Texas is mentioned, the members of the American Public Health Association who are responsible for arrangements for the fifty-ninth annual meeting to be held in Fort Worth, October 27-30, have asked the Local Entertainment Committee for a rodeo. And they are to have it unless some-



thing happens to all of the bronchos in the meantime.

In addition to watching native sons wrestling with steers and ponies, there is to be an excellent scientific program. The anti-diphtheria campaign, undulant fever, and meningitis are three topics which will be made subjects for joint sessions to be participated in by all the sections of the Association.

Further information about the Fort Worth meeting will be furnished, upon request, to the Executive Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

#### **Dr. Wiley J. Rollins, Jr.,**

Of the class of '25, University of Virginia, Department of Medicine, has just moved to Houston, Texas, where he is connected with the Houston Clinic. Dr. Rollins has been located in Macon, Ga., for the past year.

#### **Special Health Study of Prisons Just Completed.**

The first comprehensive survey of American prisons and adult reformatories, from the point of view of health and medical service, has just been completed, according to announcement by William B. Cox, secretary of the National Society of Penal Information. Dr. Frank L. Rector, executive secretary of the Chicago Medical Society, is author of the health and medical service study, which covers every federal and state penal institution, making a total of more than one hundred state prisons and adult reformatories. Counseling members of the advisory commission assisting in the work included: Dr. David L. Edsall, Dean, Harvard Medical School, Boston; Dr. George W. Crile, Cleveland; Dr. Alfred Owre, Dean, School of Dental and Oral Surgery, Columbia University, New York; Dr. W. H. Wilmer, Baltimore; Dr. C. C. Burlingame, Joint Administrative Board, New York; and Dr. William A. White, St. Elizabeth's Hospital, Washington. Practically all of the most prominent national medical organizations in the country cooperated in this survey, which reveals causes of mental and physical strain; that the medical department of many prisons is still a part of the political spoils system; inadequate ventilation and lighting; monotonous diet; and a minimum of recreation, in addition to overcrowding and idleness. Recommendations are suggested for overcoming these defects.

Further information about this work may be obtained from headquarters of the National

Society of Penal Information, 114 East 30th Street, New York, N. Y.

#### **Dr. W. P. Hoy,**

Petersburg, Va., has been appointed one of the Petersburg delegates to the district conference of the Rotary Club, to be held in Richmond, Va., May 8 and 9.

#### **The American Association for the Study of Goiter**

Will meet in Seattle, Wash., July 10-12, inclusive, with headquarters at the Olympic Hotel. On the 12th, members will adjourn to Paradise Inn, Mount Ranier, Wash., for the closing session. Dr. J. Tate Mason, Seattle, vice-president of the Association, is in charge of arrangements for the meeting.

#### **Dr. W. Lowndes Peple**

Has returned to his home in Richmond, Va., after spending a while at the Mayo Clinic, Rochester, Minn.

#### **Fire at Aston Park Hospital.**

Fire and film explosion in an X-ray room on the top floor in a wing of Aston Park Hospital, Asheville, N. C., on February the 27th, caused the complete destruction of the X-ray equipment of that hospital. The transfer of eighteen patients from that wing of the hospital was quickly effected and no one was hurt. The fire is believed to have been started by a cigarette dropped near the steel cabinet in which were filed the exposed X-ray films.

#### **Dr. E. Pendleton Tompkins,**

Lexington, Va., on February 18th, read a paper, by invitation, before the Rotary Club of that place. His subject was "Some High Points in the Life of Big-Foot Wallace." Wallace was born near Lexington, and became a notable character—scout, dead-shot, Texas ranger, and Indian fighter, in Texas; and helped to establish the independence of Texas. By special request, the paper was read again to the high school students of Lexington. Dr. Tompkins is a member, and an officer, of the Kiwanis Club of Lexington.

#### **The Gill Memorial Eye, Ear and Throat Hospital,**

Roanoke, Va., has issued its program of post-graduate instruction in the eye, ear and throat specialties, to be held at the hospital from April the 7th to 12th. Information with regard to this course may be obtained from Dr. E. G. Gill, Box 871, that city. Several prominent specialists will have charge of the clinics.

**Dr. L. E. Cockrell,**

Reedville, Va., has been appointed by the Federal government acting assistant surgeon of public health service, and a third class relief station has been established at the port of Reedville for the care of American seamen, with Dr. Cockrell as surgeon in charge.

**Dr. J. F. Alsop,**

Prospect, Va., left recently for Tulane University, New Orleans, La., where he is taking post-graduate work.

**Heads Children's Memorial Clinic.**

Dr. Manfred Call was elected president and Dr. Beverley R. Tucker vice-president of the Children's Memorial Clinic, Richmond, at the annual meeting in February.

**Dr. Kolmer Promoted to Rank of Major.**

Dr. George A. L. Kolmer, director of public health in Salem, Va., has been promoted to the grade of major in the 305th medical regiment, reserve corps.

**University of Virginia Medical Society.**

The regular meeting of this Society, on January 27, 1930, was called to order by the president, Dr. Lehman. A symposium on trichinosis formed the main feature of the evening. An epidemic of infection by trichinella spiralis, the first in the history of this hospital, was reported by Dr. W. W. Waddell. He presented several cases occurring in one family. Dr. Oscar Swineford discussed the essential features of laboratory findings in these cases with an outline of treatment. This case report will soon appear in print. The tissues and necropsy findings in one fatal case were presented by Dr. J. B. Graham.

Dr. C. B. Morton read an original paper, "Observations on Peptic Ulcer," with the report of a case of acute duodenal ulcer. The etiology of this case apparently corroborates experimental data on peptic ulcer which Dr. Morton has been obtaining for several years. This article was published in *Annals of Surgery*, January, 1930.

The next regular meeting of the Society will be February 17, 1930, at the Amphitheatre of the New Medical School.

read a case-report of "Traumatic Rupture of a Bronchus without Bony Injury to the Chest Wall." This injury resulted from an automobile accident occurring in a young colored man. This case will appear in print at a later date. The main paper of the evening was given by Dr. Alfred Chanutin of the Department of Biochemistry. The subject of his discussion was "Some Phases of Chemical Studies During the Period of Starvation," which consisted of studies in experimental animals during the starvation period with chemical analyses of various organs and tissues, with a special emphasis on the creatinin content.

A short business session completed the meeting for this time. The date of the next meeting will be announced.

**Dr. John W. C. Jones,**

Newport News, Va., attended the Gloucester fox hunt, the latter part of February.

**Dr. John H. Bell,**

Superintendent of the Virginia State Epileptic Colony, addressed the joint session of the Kentucky Legislature, early this month, his subject being "Eugenical Sterilization."

**Virginia Tuberculosis Association.**

The annual meeting of this Association was held in Roanoke, Va., on February the 28th, under the presidency of Dr. Dean B. Cole, of Richmond. One of the features of the meeting was an address at the afternoon session by Dr. P. P. Jacobs, of the National Tuberculosis Association, New York, his talk being on educational campaigns in the control of tuberculosis. Several Virginia doctors also spoke at the morning and afternoon sessions. The night meeting was held jointly with the Roanoke Academy of Medicine, at which time Dr. H. Kennon Dunham, Cincinnati, nationally known tuberculosis specialist, was the speaker.

At the business session, Dr. Dean B. Cole, Richmond, was re-elected president; Dr. H. A. Latane, Alexandria, and Mrs. T. A. Allen, Roanoke, vice-presidents; Mr. George W. Call, Richmond, treasurer; and Dr. Roy K. Flannagan, Richmond, secretary of the board. Miss Leslie C. Foster, Richmond, is executive secretary of the Association.

**Protecting Children From Tuberculosis**

Is to be the objective of a national campaign to be put on in April, when tuberculosis associations throughout the country will join in

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At the last meeting of the University of Virginia Medical Society on February 17th, Dr. Richard Meade of the Surgical Staff



an educational campaign to impress on the public that this disease usually begins in childhood. This campaign has been made possible through the sale of Christmas seals. The National Tuberculosis Association is preparing several million pieces of printed matter for distribution through its affiliated associations; a motion picture entitled "Consequences" is available; a special educational film for parents and teachers is ready, etc. In short, effort will be made to impress every person in the United States with the importance of preventing tuberculosis before it is too late, by discovering it early.

For further details concerning the campaign, address your local or the State Tuberculosis Association, or the National Tuberculosis Association, 370 Seventh Avenue, New York City.

#### **Dr. A. M. Showalter,**

Christiansburg, Va., was elected grand senior warden of the Grand Lodge, Ancient, Free and Accepted Masons of Virginia, at its annual communication in Richmond the middle of February.

#### **Examination for Entrance into the Regular Corps of the U. S. Public Health Service.**

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held on May 5, 1930, at Washington, D. C., Chicago, Ill., New Orleans, La., San Francisco, Cal., and Stapleton, S. I., N. Y.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

#### **Headquarters for Pharmacopoeial Convention.**

The Committee on Arrangements for the Eleventh U. S. Pharmacopoeial Convention in Washington, D. C., May the 13th, announces

that the Hotel Willard is to be headquarters' hotel. Rates here are from \$3.00 a day for single room without bath to \$9.00 a day for double room with bath. The Raleigh Hotel offers rooms with baths from \$4.00 to \$9.00; the Washington, rooms with baths from \$5.00 to \$12.00 a day; the Powhatan, rooms with baths from \$4.00 to \$9.00 a day; and the Harrington, from \$2.50 without bath to \$8.00 with bath.

Delegates are respectfully requested to make their reservations directly with their hotel, at least two weeks in advance of the Convention.

#### **Dr. L. F. Hansbrough,**

Front Royal, Va., has been elected a member of the board of directors of the recently reorganized Associated Charities of Front Royal and Warren County.

#### **Guest of Norfolk County Medical Society.**

On February the 17th, Dr. Paul Dudley White, of Boston, Mass., addressed the Norfolk County Medical Society, his subject being "The Prevention of Heart Disease." This Society is having some interesting meetings and will have Dr. Chevalier Jackson as an out-of-State guest on March the 31st. All members of the Medical Society of Virginia are invited to attend any of the meetings of this society.

#### **Additional Doctors Among Bank Directors.**

In addition to the doctors named in our last issue as being among bank directors in this State, we note the names of Dr. Carter Weisiger as a director of the Cumberland Bank, and Dr. R. D. Garcin as a director of the Bank of Commerce and Trusts of Richmond.

#### **The Southwestern Virginia Medical Society**

Is to hold its regular semi-annual meeting in Radford, Va., March 24th and 25th, under the presidency of Dr. J. Coleman Motley, of Abingdon. An interesting program has been arranged. Dr. W. S. Leathers, Dean of the School of Medicine of Vanderbilt University, Nashville, Tenn., has been invited to address the Society and will speak on "Preventive Medicine." Dr. E. G. Gill, Roanoke, Va., is secretary of this Society.

#### **Medical Examiners for C. M. T. C. Boys.**

Drs. E. J. Nixon, James E. Smith and E. W. Young, Petersburg, Va., have been appointed examiners for the Petersburg and Dinwiddie County districts, by the Citizen's Military Training Camp Association.

**Dr. W. J. Harrell,**

Norfolk, Va., who has been sick for over a year, is now better and hopes to be out again soon.

**For Sale.**

Kelley-Koett, bedside unit X-ray machine. Can be used on 110 or 220 alternating current, Coolidge tube. Potter-Buckley Diaphragm.

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Fireproof, brick hospital, modern in every detail, well equipped. Located in progressive community. Suitable for sanatorium or hospital of some definite type; another general hospital in town. Medical library and operating room fixtures, Kny-Scheerer sterilizers, etc., can be bought separately.

Write Mr. James H. Price, attorney for estate, Times-Dispatch Building, Richmond, Va. (Adv.)

## Obituary Record

**Dr. Richard Randolph Nevitte,**

Temperanceville, Va., died January 17th, after a short illness. While performing an operation on January 3rd, he cut his finger and developed blood poisoning. Dr. Nevitte was born at Newington, Fairfax County, Va., and was fifty-eight years of age. He graduated from the University College of Medicine in 1902 and had been practicing in Temperanceville for the past twenty-eight years. Dr. Nevitte was a World War veteran, having served in France. He was a former president of the Accomack County Medical Society, vice-president of the Physician's Journal Club of the Eastern Shore of Virginia, and was associated with several fraternal organizations. He had been a member of the Medical Society of Virginia for twenty-eight years. His wife and two children survive him.

**Dr. Alpheus Fields,**

Norfolk, Va., died at his home in that city on February 4th, at the age of sixty-two years. Although a native of Lenoir County, North Carolina, Dr. Fields had made his home in

Norfolk for the past twenty-five years. He graduated in medicine from Jefferson Medical College, Philadelphia, in 1887. He was a member of the Norfolk County Medical Society and had been a member of the Medical Society of Virginia since 1898. His wife and three children survive him.

**Dr. John M. Harwood**

Died February 12th, at his home in Petersburg, Va., after an illness of several days. He was forty-one years of age and graduated from the Medical College of Virginia in 1917. Dr. Harwood was a charter member of the Petersburg Kiwanis Club, and had been a member of the Medical Society of Virginia since 1918. He was the son of the late Dr. William E. Harwood. A young daughter survives him.

**Dr. Charles William Greever,**

Tazewell, Va., died suddenly on February the 14th, although his health had not been good for sometime. He was a native of Tazewell County, Va., and seventy-seven years of age. He was graduated in medicine from the Chattanooga (Tenn.) Medical College in 1901, and joined the Medical Society of Virginia that Fall. In addition to his professional work, Dr. Greever had served his county in many important offices, and had also been mayor of Tazewell. His second wife and several children survive him.

**Dr. Louis Eldridge Foulks,**

An associate member of the Medical Society of Virginia, died at the home of his son in New Egypt, N. J., December 11th, after an illness of two years with cancer. He was seventy-six years of age and had held many prominent positions, the last of which was being head of the Health Department of Alexandria, Va., from which he resigned when his health failed. His wife and three children survive him.

**Dr. Joseph A. Shuler,**

India, Va., died in his home in that place, on January 3rd, his death being due to heart disease. He was sixty-two years of age and had graduated in medicine from the Chattanooga (Tenn.) Medical College in 1905.

**Dr. Martha M. Waldron,**

Retired physician of Hampton, Va., died January the 3rd, death being due to angina pectoris. She was seventy-nine years of age and had graduated from the Woman's Medical College of Pennsylvania, Philadelphia, in 1881.



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